# Abstracts and Artist Statements Guide

*Listed by Department and Student Last Name, Alphabetically*

| Accounting and Finance | | |
|---|---|---|
| Soraya Stewart | CEO Pay Ratio and the Gender Divide | Oral Presentation |
| **Allied Health and Human Performance** | | |
| Nazia Laghari | An Investigation of the Correlation between Social Media Usage and a Low Self-Esteem Score | Poster Presentation |
| Abby Oloriz | Effects of Pets Assisting with Students' Success (PAWSS) program at MacEwan University | Poster Presentation |
| Mehakpreet Singh & Nasrine Sajay | An Integration of Cultural Safety in Canadian Higher Education: The Experiences of Nursing and Social Work Faculty | Poster Presentation |
| **Anthropology, Economics, and Political Science** | | |
| Felix Bentley | A Cross-Cultural Examination Of The Alchemical Origins Underlying Medicinal Uses Of Mercury Across Eurasia | Poster Presentation |
| Brandon Biglow | Artificial Intelligence in Government: Evaluating Workforce Transformation Ethical Challenges and Public Sector Adaptation | Oral Presentation |
| Brandon Biglow & Jayden Secrist | Evaluating Alberta's Weed Control Legislation: A Jurisdictional Analysis of Gaps and Biodiversity Impacts | Oral Presentation |
| Emily Boivin | How do Albertans View the Public Service? | Poster Presentation |
| Matt Clark & Lula Bouzayhuel, Kon Kon, Bilan Mohamed | How does Climate Change affect Edmonton's Indigenous Communities and What can be Done to Reduce these Effects? | Oral Presentation |
| Renee Ethier | "Taking over space": A look into Students Spatial Capital at Campus Cafes | Oral Presentation |
| Eman Farhan | Impact of Cochlear Implants: A Threat or Tool for Deaf Identity? | Oral Presentation |
| Alicia Farvolden, Danny Fehr, Levi Zimmerman, Stephan Vasquez & Jonathan Hernandez Barrientos | Addressing Climate Change Through Building Repurposing | Oral Presentation |
| Shaula Garingalao | Employment Challenges and HIV/AIDS: Experiences of Black/ African Women in Edmonton Alberta | Poster Presentation |
| Idylle Issack-Ibrahim & Mical Ghebresilasie | The Benefits of Expanding and Increasing Accessibility of Green Spaces in Edmonton | Oral Presentation |
| Suhiry Kaluhennadige | The Circulation of Buddhist Sermons and Poetry within NPP Rallies in Sri Lanka | Oral Presentation |
| Carmen Keith, Gavyn Janke, Mabel Adesopo & Oliver Patton | Community-Based Toolkit For Tackling Biodiversity Loss | Project Display |

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|---|---|---|
| Jordan Laframboise | Birth Policy and Power: Indigenous Experiences of Obstetric Violence Colonial Policies and Reproductive Justice in Canada | Oral Presentation |
| Jody Reyes-Muralles | An Osteobiography of a Dog in the Woods and Possible Entanglements with Humans | Poster Presentation |
| Ash Schepens | The Rise of the 4B Movement: Reimagining Futures Through Radical Resistance | Poster Presentation |
| Jaden Secrist | Path to Peace: Contrasting Approaches to Reconciliation and Transitional Justice. | Project Display |
| Abdullah Sendyan | Principal Agent Theory-An outlook Into Iran's Foreign Policy in The Middle East | Oral Presentation |
| Hailey Sikstrom | LAVA is still MAGMA: Musings on ArchaeoGaming Methodology and AI | Oral Presentation |

## Biological Sciences

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|---|---|---|
| Nicholas Abdilmasih | Comparative analysis of single vs. multiple gRNA on NGN3 expression using a controllable dCas9-VP192 activator (CRISPRa) | Poster Presentation |
| Erin Arnason | Using Trail Cameras to Detect Franklin's Ground Squirrels in Alberta | Poster Presentation |
| Taylor Arnell | Investigating the MlaYZ system that maintains outer membrane lipid asymmetry in Pseudomonas aeruginosa. | Oral Presentation |
| Farah Assaf | Characterization of ATP-binding DNA aptamer by DMS footprinting | Oral Presentation |
| Analise Beatty | Evaluating fence permeability and seasonal mammalian movement in Elk Island National Park | Oral Presentation |
| Gurmun Brar | Frequency of rattle call use in relation to density | Oral Presentation |
| Madelaine Britt | Inducing Beta-Cell Transdifferentiation Using CRISPR-on Technology in Type 1 Diabetes | Oral Presentation |
| Max Buchanan | Applied Behavioural Enrichment and Care in Wildlife Rehabilitation | Oral Presentation |
| Julia Hebert | Trail Camera Use for Conservation of Franklin's Ground Squirrels (Poliocitellus franklinii) in Alberta Canada | Oral Presentation |
| Nicolas Mannarino | The Effects of Fence Permeability & Habitat on Carnivore and Herbivore Crossings at Elk Island National Park | Oral Presentation |
| Colby Mask | Identification quantification and timing of HOX gene expression during D. andersoni embryo development | Oral Presentation |
| Cory Morrison | Runs of Homozygosity Analysis in Galapagos Tortoises Using Whole Genome Sequencing | Oral Presentation |
| Anna Ostergaard | The Effect of Climate Change on Range Expansion of Mosquito Vectors and Arbovirus Transmission Season Length | Poster Presentation |
| Sahiba Pahwa | Investigating the Mechanism of Bacterial Resistance to Carvacrol in Oregano Oil | Oral Presentation |
| Inderpal Panjeta | Examining Microplastic Ingestion in Soft bodied Corals | Oral Presentation |
| Shaye Parsons | Spatial Distribution of Trace Elements in Human Bone: Examining Pb Sr Cu and Fe Using SR-XFI | Oral Presentation |
| Rawlie Prince | Identifying lactobacilli-yeast interactions in kefir fermentations | Oral Presentation |
| Farista Sairuv | Development of DNA Microsatellite Markers to Investigate Genetic Diversity of the Orchid Galearis rotundifolia | Oral Presentation |
| Lauren Tkalcic | Instructional Videos as a Universal Design for Learning Strategy in Biology Labs | Poster Presentation |

| Lauren Tkalcic | Molecular cloning to create a FLOWERING LOCUS C (FLC):GREEN FLUORESCENT PROTEIN (GFP) expression vector to study its nuclear localization in Arabidopsis thaliana | Oral Presentation |
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| Morgan Warawa | Insights into the Genetic Diversity of Northeastern Arctic Grayling Populations in Canada: A Foundation for Conservation Efforts | Oral Presentation |
| Harjot | The Use of TLC Direct Bioautography to Examine the Antibacterial Properties of Invasive Weed Extracts against Bacillus subtilis | Oral Presentation |

## Child and Youth Care

| Saron Kahsay, Salma Ahmed, Yordanos Dawit & Carol Nicholas | Exploring CYC Students' Experiences of Applying Decolonizing Knowledge in Their Daily Lives and Practice | Project Display |
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| Emma Nagel & Elizabeth Heil | CYCW Art Based History Project - Poverty in Edmonton | Poster Presentation |

## Communication

| Viktorya Gyulinyan | An Analysis on Early Communication in Relation to Children's Language Acquisition Programs and its Effects on Language Development and Communication Skills | Oral Presentation |
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| Uchechukwu Osineme | Beyond the Screen | Oral Presentation |
| Faith Tabladillo | AI in Journalism: Ethics Misinformation and the Future of News | Oral Presentation |

## Computer Science

| Jehdi Aizon | Evaluating the Impact of Virtual Reality Training Simulations in Nursing Education | Oral Presentation |
|---|---|---|
| Keanu Burr | BONFIRES: A Video Game for Promoting Healthy Diet through Retelling Greek Myth | Performance |
| Oscar De Leon, Kevin Ulliac & Isaac McCracken | Interpolating Humor - Can Lines be Funny? | Oral Presentation |
| Michael Dinelle, A.J. Neufeld, Sydney Thiessen, Masha Antoshkina & Shanil Kumar | Mentor Match: A Tutoring App Demonstration | Oral Presentation |
| McKenzy Ison, Justin Thai, Karley Yachimec & Daniel Platt | Real-time Sign Language Recognition and Translation: A Mathematical Approach | Oral Presentation |
| Haris Kajtazovic | Investigating Virtual Simulation of an Optic Lab in Physics Education Using Virtual Reality | Oral Presentation |
| Matthew Kostawich | mm-Wave Wearable Edge Computing Module hosted by PRGW Structures: A Physical layer study | Poster Presentation |
| Benji Lawrence & Neal Hamacher | Charging Optimization in Multi-App Wireless Sensor Networks through Reinforcement Learning | Oral Presentation |
| Richard Lui | Preliminary results on using clustering of functional data to identify patients with Alzheimer's Disease by analyzing brain MRI scans. | Oral Presentation |

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| Arfaa Mumtaz & Allan Lam | Drone-Based Automated Agricultural Sampling | Poster Presentation |
| Tanveer Singh | Confidence Recognition: A Deep Learning Approach with the Mozilla Common Voice Dataset | Poster Presentation |
| Brendan Ure & Benjamin Kwon | Learning Geometric Shapes using a Deep Variable Autoencoder | Poster Presentation |
| Ryan Vieira | EEG Analysis for Decoding Brain Activity During Music Listening | Poster Presentation |

## Decision Sciences

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|---|---|---|
| Miranda Holba & Megha Sunny | Atmospheric Interference: Weather Impact on Admission at Telus World of Science | Poster Presentation |
| Isabel Reay & Michael Williams | Hazing Through the Lens of Social Bonding Theory: How Legal and Regulatory Frameworks Shape Perceptions of Hazing in India | Oral Presentation |

## Design

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|---|---|---|
| Raquel Callele | Bent River Album Cover Design Challenge | Poster Presentation |
| Katie Clarke | Close to Home: Connecting the feelings and emotions between music and art | Project Display |
| Taylor Davies | Amber Kivinen Memorial: MacEwan Book of the Year | Project Display |
| Ella Jane Eresmas | Honouring Amber Kivinen Candle Series: MacEwan Book of the Year Packaging Design | Project Display |
| Lisa Kotelniski, Erin Hutchison & Kevin Thomas | Putting Us Together | Performance |
| Victoria Lockridge & Joel Sims | Designing for Dementia: De Hogeweyk's Approach to Human-Centered Care | Poster Presentation |
| Stacy Ma | Album Design as an Immersive Invitation & Visual Companion | Project Display |
| Stacy Ma | MarsLife:NOW | Project Display |
| Stacy Ma | Typographic Expression of "The Wind" by Ray Bradbury | Project Display |
| Harry Moores | Album Cover Design for Edmonton Winds | Project Display |
| Perl Perez | MarsNow Surprise: A Product Design for the 2024 MacEwan Book of the Year | Project Display |
| Michelle Philip, Marwa Ali & Leo Cronin-Barrow | Adopting Wellness Classes In Edmonton Leisure Centres | Oral Presentation |
| Max Quilliam | Interfacing: An Exploration of Transgender Fashion Gender Affirmation and Passing | Oral Presentation |
| Kayla Sauth | Book of the Year Exploration: Storytelling through Player Interactions | Project Display |
| Rory Stahlke | Postcards to Mars: Experimental Typography Inspired by MacEwan's Book of the Year | Project Display |
| Rory Stahlke & Taylor Davies | Paranoia: An Anthology of Horror | Project Display |
| Amanda Stashko | Adam & Amber: The Creation of Eden | Poster Presentation |
| Amanda Stashko | Close to Home: An Interpretation of the Edmonton Winds Music | Poster Presentation |
| Amanda Stashko, Ryo Cifra, Katie Clarke, Tiana | Liminalities: Anthology of Horror | Poster Presentation |

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| Ernscliff, Joshua Horn, Tarik Koehn, Brad Kwasnycia, Harry Moores, Alexandra Moule, Athena Scott, Harley Shymanski, Justin Van Teeling, Lynn Vu, Troy Wegner & Evan Wilson | | |
| Forrester Toews & Kate Young | MacEwan's School of Business - Visual Identity Concept | Oral Presentation |
| Ayse Yesil | The Little Prince Book Redesign | Project Display |

## English

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|---|---|---|
| Jessica Altheim | Ecogothic Environments and the Queer Colonial Other in Bram Stoker's Dracula | Oral Presentation |
| Ashley Alton | Honours Presentation | Oral Presentation |
| Christian Lambert | The Moose and the Mountain: The Ethics of Consumption and Extraction in The Marrow Thieves and Escape to Gold Mountain | Oral Presentation |
| Evan Meeks | Impossible Children: Post-Oedipal Subjectivity in Villeneuve's Blade Runner 2049 and Ducournau's Titane | Oral Presentation |
| Beth Murray | "It's Not That Deep": Feminist Killjoy Epistemologies in Intersectional Digital Fandom Discourse. | Oral Presentation |
| Erica Myles | Observing The Relationship Between Emily and Nature in Ann Radcliffe's The Mysteries of Udolpho | Oral Presentation |
| Rae Richardson | Resident Evil: Films Versus Video Games the Shift in Narrative and Genre Towards Personal Affect | Oral Presentation |

## Gender Studies

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|---|---|---|
| Kinza Ahsan | Immigration Religion and Integration into the Canadian Workplace | Oral Presentation |
| Katelyn Tanner | Gender Construction in the Horizon Series: Zero Dawn and Forbidden West | Oral Presentation |

## Human Services and Early Learning

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|---|---|---|
| Zachary Jickling | A Systematic Review of Fatigue Definitions: Seeking Consensus Across the Literature | Poster Presentation |
| Sandy Lagrada | Play and Play Materials in Early Learning: What Do Child Care Frameworks Across Canada Emphasize? | Oral Presentation |

## Humanities

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|---|---|---|
| Joshua Bell | The History and Innovation of E-mail Communication in Organizations | Oral Presentation |
| Damien Camp | Placement in the Archives: a History Degree in Action | Oral Presentation |
| Steven Jewkes | Joan of Arc - A Study in Virginal Power and Female Autonomy | Poster Presentation |
| Alyssa Korpesio | Women in Historic Alberta | Poster Presentation |
| Courage Omale | Ma petite ville | Poster Presentation |
| Paige Reed | Religion in the Ancient World: The Role of Religion and Sacrifice within War | Oral Presentation |

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| Jake Ristic-Petrovic | Home Front: Early Modern Families in Wartime | Oral Presentation |
| Farista Sairuv | La ville de l'avenir | Poster Presentation |
| Sean Simoneau | Royal Alberta Museum Research | Poster Presentation |
| Harman Singh | India 1984 to 1995: The Forgotten Genocide or Riots? | Oral Presentation |
| Isaac Sussman | Through-lines of Greek and Trojan argument in Greek Tragedy | Poster Presentation |
| Alem Tesfay | North Korea, Utopia? | Poster Presentation |

## International Business, Marketing, Strategy, and Law

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|---|---|---|
| Joshua Bell | Clicking Sticking and Leveraging: A Behavioural and Intrapreneurial Approach to Alumni Engagement | Oral Presentation |
| Kori Davey | A Stronger Me: Online Resources Dedicated to Support Victims of Domestic Violence | Poster Presentation |
| Mackenzie Hazlewood, Logan Hoover, Luke Aranas, Gurnoor Pandher & Keza Muhire | Setting the Stage: Future Marketing Efforts for Performing Arts Institutions | Oral Presentation |
| Russell Johnson & Avishek Paudel | Food Production and Nutritional Security in Bangladesh: Historical Trends and Future Projections | Poster Presentation |
| Maria LeMaistre, Chalci Maxwath, Shion Hirano, Sierra Cysouw & Genia Goldstein | Strategic Marketing for Family-Owned Luxury Dealerships: Building Brand Authenticity at Lexus of Edmonton | Oral Presentation |
| Callie Linke & Tamia Bingham | Enhancing MacEwan's Career Services | Oral Presentation |
| Faeben Mekonnen, Cyril Fahmy Wasef, Jonah Jakobs, Erriane de Ocampo & Madison Kohlsmith | Adapting to Geopolitical Tensions: Strategic Approaches for Canadian Automotive Companies | Oral Presentation |
| Diana Pedrajas, Lara Savka & Manika Kallychurn | Enhancing Career Services Engagement: Understanding Accessibility and Awareness Among Third-Year Students and Above | Oral Presentation |

## Management and Organizations

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|---|---|---|
| Joshua Bell & Nahuel Medina Garcia | From Bench Press to Bottom Line: Navigating Consumer Behaviour at the Don Wheaton YMCA | Oral Presentation |
| Cyril Fahmy Wasef | A Literature Review of Post-Pandemic Workplace Experiences of Foreign-Trained Medical Doctors and Nurses in Canada: Analyzing Job Satisfaction, Career Advancement Issues and Opportunities | Oral Presentation |
| Elise Frederickson | A study of Edmonton Short Film Festival: Engaging Youth in Short Film Festival Participation | Poster Presentation |
| Madylin Gillett | Can Priming Job Candidates with Matriarchal Values Lead to Gender-Equal Hiring? | Oral Presentation |
| Harnoor Grewal | Gender Pay Disparities: Law vs. Reality in the Construction Industry | Poster Presentation |
| Jesse Grywacheski | Human Resources Management in Africa | Oral Presentation |

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| EJ Adrian Manangan | Enhancing Undergraduate Learning Through Business Case Writing: A Reflective Analysis | Poster Presentation |
| Jolie Nawar | Transformational Leadership Emotion and Women in Leadership Roles | Oral Presentation |
| Viktoria Valach | AI Awareness and its Effect on Employee Behaviour and Well Being | Poster Presentation |
| Ana Vidal Oscar | Disabilities in the Workplace - the Impact of Policies and Procedures | Oral Presentation |

## Mathematics and Statistics

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|---|---|---|
| Stuart Dovey | Assessing NHL Contract Valuation Through Statistical Modeling | Poster Presentation |
| Leif Fitzsimmons Frey, Chris Dela Cruz & Tom Luu | Fermat's Last Theorem and the Golden Mean | Oral Presentation |
| Osman Jime & Jordan Kaseram | Failure Rates Of The Matrix Triangle Inequality | Oral Presentation |
| Esa Johnson | Dynamical Models of Competition with and without Partial Cooperation in Population studies | Oral Presentation |
| Jordan Kaseram | Enumeration of Latin Squares | Oral Presentation |
| Hunter Labrecque | Tensor Products and Compact Containment | Oral Presentation |
| Samantha Malek | Patterns of in-game learning support use and game performance and their impact on engagement and disengagement in a biology educational video game using k-means clustering. | Oral Presentation |
| Nolan Oleny & Anirudh Mankotia | An Algorithm to Check the Goldbach Conjecture | Oral Presentation |

## Nursing

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|---|---|---|
| Sarah Burden, Kiara Ukrainetz & Taij Mann | Deep vs. Superficial Learning in Nursing Students | Poster Presentation |
| Brooke Davidson | Experiences of Nursing Students With Disabilities in Nursing Programs | Poster Presentation |
| Jaida Davoren, Sasha Ryzhova, Mayank Kaushik, Gloriya Mehriezgi & Isaiah Stobee | Innovative Approach to Increase Preventative Cancer Screening in Rural Communities | Oral Presentation |
| Mayank Kaushik | Conceptualizing Relational Agency: A Concept Analysis | Poster Presentation |
| Taij Mann, Kiara Ukrainetz & Sarah Burden | Harnessing Generative AI (Gen AI) in healthcare: transformative implications for nursing education | Poster Presentation |
| Gloriya Mehriezgi | Enhancing Primary Care Efficiency: The Role of AI in Supporting Nurse Practitioners | Oral Presentation |
| Kazi Nawme Nilema Mihila | Anxiety Factors among Nursing Students During Clinical Placement. | Poster Presentation |
| Sehzpreet Padda & Reyna Parikh | Experiences of MacEwan University Nursing Students with Violence at Clinical Sites | Poster Presentation |
| Kiara Ukrainetz, Taij Mann & Sarah Burden | Beyond the Textbook: Unlocking the Future of Nursing Education | Poster Presentation |

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| Jonah Zwaigenbaum & Sarah Franks | Factors Related to Burnout For Canadian Nurses During the COVID-19 Pandemic an Integrative Review | Poster Presentation |

## Physical Sciences

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| Akash Annadurai | Computational Modelling of the Reaction Path for Dioxygen Splitting by Carboxylate-Bridged Oxo-Centered Trinuclear Rh(III) Complexes | Oral Presentation |
| Erik Bartley & Hailey Doyle | Polymer-Based Membranes for Carbon Capture | Poster Presentation |
| Felicity Bautista | A Novel Spectrophotometer Based on Musical Tesla Coil Speakers | Oral Presentation |
| Emily Chatwin | Investigating Fluid Fine Tailings Treatment for Improved Water Quality in Oil Sands Operations: A Chemistry 497 Internship at Natural Resources Canada | Poster Presentation |
| Rebecca Cruickshank | Investigating cadmium sorption through FTIR and ICP-OES | Poster Presentation |
| Lulia Efrem | Hands-On Analytical Chemistry: Optimizing Instrumental Techniques at MacEwan Analytical Chemistry Instrumentation Centre | Poster Presentation |
| Abdalla Elmanoufi | Extraction efficiency of microplastics from water sediments based microplastic density and Sizing | Oral Presentation |
| Naima Faisal Abdalla | Advancing Solubility Sensing and Polymer-Enhanced Detection: Chemistry Practicum with Fourien Inc. | Poster Presentation |
| Violet Franklin | Statistical analysis of UV-Spectroscopy methods for Pancreatic Lipase Inhibitors | Oral Presentation |
| Jon Paulo Germita | Identification of Mesophase Formation for carbon fiber production from Bitumen and Optimization of Aluminum waste hydrolysis setup for Hydrogen gas production: Chemistry Practicum with National Research Canada – CanmetENERGY. | Poster Presentation |
| Nadien Harb | Techno-economic Analysis of Cellulose Conversion into Bio-jet Fuels | Oral Presentation |
| Nadien Harb & Hinda Hassan | Identifying Factors that Affect Student Engagement in Chemistry | Oral Presentation |
| Alyssa Kich | Sedimentological characteristics of the Altares Member of the Montney Formation: Insights from thin section observations | Poster Presentation |
| Blake Maday | Synthesis of Chloromethyl furfural using a continuous flow separator | Oral Presentation |
| Thomas Makey | What Sort of Sloth? Identifying Alberta's Giant Ground Sloth Fossils and Exploring their Significance to Ice Age Canada | Poster Presentation |
| Loreena Nieuwenhout | At-risk paleoclimate archives in Alberta's Rocky Mountains | Poster Presentation |
| Maryjane Okwuchukwu, Yuliia Ravlyk, Daniel Ritualo, Juan Sarrosa & Yehia Rahime | Peptide Synthesis | Oral Presentation |
| Jireh Otanes | Development and Validation of Acid Hydrolysis method for total fat determination in petfoods: Chemistry Practicum with Champion Petfoods | Poster Presentation |

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| Yehia Rahime, Daniel Ritualo & Juan Sarrosa | Anti microbial activities | Oral Presentation |
| Juan Miguel Sarrosa, Yehia Rahime & Daniel Ritualo | Modification of primary sequence microbial peptide Cancrin for antimicrobial activity | Oral Presentation |
| Courtney Stefner | Organic Synthesis of Silyl Glyoxylates | Poster Presentation |
| Rina Tran | Quantification of alpha-amylase in human saliva using cyclic voltammetry with screen-printed carbon electrodes (SPCEs) | Poster Presentation |
| Robyn Woodrow | Characterization of microplastics in roadside snowbanks | Oral Presentation |
| Layal Zidan | Combating Antibiotic Resistance with Silver-Coated Bandages: Insights from a Chemistry Internship at Exciton Technologies Inc. | Poster Presentation |
| Layal Zidan | Improving the Quantification and Characterization of Microplastics in Urban Wastewater Treatment Plants Effluent Utilizing 13mm Mesh and Raman Spectroscopy | Poster Presentation |

## Psychology

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|---|---|---|
| Manar Al Ghamdi | Parasocial Relationships and Political Engagement on Social Media | Oral Presentation |
| Anika Anderson | Narcissists' Reactions to Stereotype Threat | Oral Presentation |
| Siddharth Annadurai & Matthew Harper | The Impact of Age and Intruders on Shoaling Behaviour: Finding a Group-Intruder Paradigm in Zebrafish | Poster Presentation |
| Olad Ayodeji | Visually Guided Reaching in Patients with Spatial Neglect | Poster Presentation |
| Braedin Bauer | Evaluating the Efficacy of the AIM Curriculum with Elementary School Students. | Poster Presentation |
| Daniel Beljan | Materialism and Risk-taking Behavior | Poster Presentation |
| Joshua Bell & Sarah Logan | A Timeline Inquiry into an Eating Disorder Misdiagnosis | Oral Presentation |
| Samraggee Bhattacharya | Mindfulness Parenting Stress and Parental Responsiveness | Poster Presentation |
| Aaron Bishop | The Closer the Better: Reward Processing is Enhanced for Near Items | Poster Presentation |
| Kaiden Blakley | Exploring the self-structure of individuals higher in narcissism | Poster Presentation |
| Claire Brubaker | Does knowledge of dementia stigma beliefs and the presence of ageist beliefs influence nurses' distress when encountering dementia-related behaviours? | Poster Presentation |
| Tazveer Chauhan | Understanding Community Notifications for High-Risk Offenders in Canada: A Comparative Analysis | Poster Presentation |
| Mackenzie Christensen | Predictors of Dance Skill: The Role of Motivational Climate, Adaptive Perfectionism, and Grit | Poster Presentation |
| Dakota Dickinson | No Pride in Control: Identifying Harmful Patterns to Build Safer Queer Relationships | Oral Presentation |
| Lindsay Downs | Blinded by Belief Bias: Can Our Beliefs Affect Our Detection of AI-Generated images | Poster Presentation |
| Garth Dyer | Locking Eyes Unlocking Memory: Examining the Influence of Eye Gaze on Memory | Oral Presentation |
| Nassreen Fayad | How do Culture and Sex Education relate to Consent Perceptions and Communication? A Cross-Cultural Student Survey | Poster Presentation |

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| Merranda Felker | Does the Place that Dementia Related Behaviour Occur (private vs public) Increase Distress in Canadian Undergraduates? | Poster Presentation |
| Madylin Gillett | Cognitive Load in Virtual Environments: Object Crowdedness and Field of View | Oral Presentation |
| Jared Girard | The Impact of Feedback Modality on Reward Processing | Poster Presentation |
| Britni Gorman | Assessing Bias: The Ontario Domestic Assault Risk Assessment Tool and Indigenous Offenders | Oral Presentation |
| Ahanavi Habib-Mohammed | Behavioral Effects of Acute Nepicastat Administration in Larval Zebrafish | Poster Presentation |
| Stacey-Jane Harris | Choose Your Own Adventure (and Rewards): The Relationship Between Narrative Reward and Memory | Poster Presentation |
| Samantha Helgeson | A is Not for Ally: Identifying Risk and Protective Factors Impacting Asexual Identity Erasure and Mental Health Outcomes | Oral Presentation |
| Katherine Hudec | Application of ACT Therapy in Athletes: Self-Identity Leading to Depression and Anxiety After Injury | Poster Presentation |
| Avery Hudson | EEG Measures of Executive Control During "Automatic" Reach Corrections. | Oral Presentation |
| Travis Hutchinson | Sniff Around and Find Out | Poster Presentation |
| Travis Hutchinson, Olivia Piché, Sebastian Toews, Tobin Steman & Chelsea Calverley | Dog Park Behaviour Project | Poster Presentation |
| Syhdnnae Jans | An Examination of Implicit Theories of Worry | Poster Presentation |
| Syhdnnae Jans | Support for Developing and Maintaining Behaviour Change Plans | Poster Presentation |
| Dana Jones | How do cognitive reappraisal interventions and active learning strategies impact test anxiety and exam performance? | Oral Presentation |
| Zach Krukowski | Dirty Deception: Do Dark Triad traits predict lying about sexual history? | Oral Presentation |
| Ashley Kutcher | Parental beliefs about children's language and music development: a pilot project | Poster Presentation |
| Taylor LeBlanc | Dancing Smarter Not Harder: Predictors of Success in Adolescent Dancers | Poster Presentation |
| Isabelle Lee | Exploring the relationship between parental involvement and child development in play activities | Poster Presentation |
| Katherine Luzanac | The Relationship Between Childhood Time-Out, Emotional Problems, and Personality | Poster Presentation |
| Alex Mattar | Investigating the Effects of PK-20 on Locomotion and Startle Responses in Larval Zebrafish | Poster Presentation |
| Will McCarty | Is increased musical proficiency associated with increased spatial ability? An examination of spatial navigational tendencies and executive function in musicians. | Poster Presentation |
| Sara Meadus | Implementation of an Error Correction Assessment Protocol for Children with Autism | Poster Presentation |
| Anza Mirza | Parental Playlists: Investigating Preschoolers' Recognition of Parental Singing | Oral Presentation |
| Madison Mrazik | An Investigation of Behavioural Changes Following Acute Exposure to (-)-Nicotine Across Ages in Zebrafish (Danio rerio) | Poster Presentation |

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| Marko Muselin | Got Self-Control? Investigating Inhibition in North American Red Squirrels | Oral Presentation |
| Cadence Mutch | Eyes on the Prize: Cracking the Code of AI-Generated Deepfake Image Detection | Poster Presentation |
| Chloe Nelson | Fool Me Once, Shame on You: The Role of Gender Identity, Expression, and Attributions on Sexual Assault Victim-Blaming | Poster Presentation |
| Khulda Noor | Social Dominance and Social Security in High and Low Materialists | Oral Presentation |
| Delaney O'Brien-Ristau | Does Providing Students with Choice Increase Academic Confidence and Reduce Academic Procrastination and Stress? | Poster Presentation |
| Abby Oloriz | The Effect of Task Engagement on Reward Processing | Poster Presentation |
| Neerali Panchal | Influence of Study Tactics vs. Life Style Factors on Academic Performance | Oral Presentation |
| Olivia Piché | Coaxing and Coercion in Female Mating Behaviour: Motivations, Sociosexuality, and Dark Triad Traits. | Poster Presentation |
| Nyala Pittel | Is Advertisement Sexy? An exploration of priming in perceptions of sexual consent | Oral Presentation |
| Alice Rainville | Bursting With Sound: Functionality of American Pika (Ochotona princeps) Vocalizations | Poster Presentation |
| Nadia Reid | Step Aside Fame, Facts Takes Center Stage: Examining the Role of Fame and Evidence in Sexual Assault Cases. | Oral Presentation |
| Lucia Rittammer | Personality and Politics: Collective Narcissism and Reactions to Political Issues | Oral Presentation |
| Marilyn Robbins | Gender? I Hardly Know Her: The Effects of Gender Self-Perception on Attraction | Oral Presentation |
| Gary Rosastik | Behavioural changes following acute (-)-nicotine exposure across adult age ranges in zebrafish (Danio rerio) | Poster Presentation |
| Katerina Rubachuk | Navigating Picky Eating: Enhancing Food Acceptance in Children through High-Probability Food Pairing and Shaping Without Escape Extinction | Oral Presentation |
| Puja Suthar | Methodological approach for Studying the McGurk Effect in Hindi | Poster Presentation |
| Puja Suthar | The Role of Face Perception and Eye contact in Social Communication of Toddlers with Autism Spectrum Disorder. | Poster Presentation |
| Adam Szybunka-Ostopowich | How Do Visual and Tactile Object Features Enhance Executive Functioning? | Poster Presentation |
| Keirsten Taylor | The impact of play materials on young children's science technology engineering and mathematical explorations in peer play | Oral Presentation |
| Sebastian Toews | Fighting Fire with Fire: Presenting a Pseudoscience Activity to Combat Unwarranted Beliefs | Poster Presentation |
| Dawson von Stein | Examining Metacognition and Open-Mindedness as Tools for Combatting Misinformation | Oral Presentation |
| Deyan Vulkov | Teaching AI-Generated Image Detection Ability | Poster Presentation |
| Nathan Wan | Blind Spots and Battle Tactics: How Eye Gaze Shapes Spatial Cognition in Hide-and-Search Strategy | Oral Presentation |
| Tegan Warwaruk | From Childhood Reading to Adult Education | Poster Presentation |
| Isabella Yip | The Relationship Between Pet Ownership and Disordered Eating Behaviour | Oral Presentation |

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| Lanna Zahreddine | Assessing the Addictive Potential of Xylazine: A Behavioral Analysis Using a Zebrafish Model | Poster Presentation |
| Candice Zunti | We Don't Talk about B: Exploring Factors Affecting Internalized Biphobia Mental Health and Outness Among Bisexual Individuals | Poster Presentation |

## Public Safety and Justice Studies

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| Tayler Kidd | Canada's Housing Failure | Oral Presentation |

## Social Work

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| Sydney Britton, Amaal Askar & Sydni Ecker | Addressing Systemic Barriers in Edmonton: Bridging the Gap Between Community Resources and Need | Poster Presentation |
| McKenzie Croken | Colonialism Continued: How Western Education Continues to Fail Indigenous Youth | Poster Presentation |
| Cassandra Hannin, April Wyant, Minh-Nguyen Chu, Marcus Castro & Lindsay McLean | Edmonton River Valley Parks: Identifying Barriers to Access and Enjoyment | Poster Presentation |
| Brynne Thomas | The prevalence of suicide and mental health concerns among those struggling with invisible disabilities | Oral Presentation |
| Kamylle Viney, Skye Sekulich, Leilani Konietz, Shilpa Saju & Alexa Warawa | Equity Diversity and Inclusion within the Rural Development Network | Poster Presentation |

## Sociology

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| Dahetlea Antoine & Reise Romanchuk | Qualitative Comparative Analysis: Intercultural Research Between Ukraine and Canada - Urban Spaces Impact on Individuals Social Cohesion | Oral Presentation |
| Taylor Badger | The Honking Will Continue: A Content Analysis of Canadian Newsmedia Portrayals of the Ottawa "Freedom Convoy" and the Coutts Blockade | Oral Presentation |
| Kaiden Blakley | The Dissolution of Community and The Role of Technology | Poster Presentation |
| Caitlyn Brown | Hostile Design On Campus: An Observational Study | Oral Presentation |
| Caitlyn Brown & Aiden Hite | The Mediatization of War and Its Role in Shaping Youth Political Activism. | Oral Presentation |
| Kiara Bruynooghe | How have modern features in society facilitated a realistic notion of motherhood? | Poster Presentation |
| Merranda Felker | Contrasting Narratives: Representation of Homelessness in Alberta and British Columbia Media: Mortality Deviantization and Humanizing Language | Oral Presentation |
| Emily Finna | Therapeutic Discourse and Modern-Day Exorcism: An Analysis of Reverend Bob Larson | Oral Presentation |
| Chadene Forrester | Pinkpill vs Blackpill | Oral Presentation |
| Wy George | Social Inequality: Anti-Fat Bias in Society | Poster Presentation |
| Aaron Glenn | Edmonton Safe Consumption Sites and Their Relationship with Crime | Oral Presentation |
| Aaron Glenn | Systemic Racism and Hockey: How do the NHL and PWHL Bargaining Agreements Reflect the Hierarchy of Racialization and Privilege? | Oral Presentation |

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| Amber Glover | Neoliberalism and Identity: Tradwives on TikTok | Oral Presentation |
| Grace Lequier | Invisible Truths: Representations of Incarcerated Queer Women in Orange is the New Black | Oral Presentation |
| Joy Long & Kaidyn Seida | Navigating the Temporary: Barriers to Stability for Ukrainian Newcomers in Canada | Oral Presentation |
| Justice Marks | Getting to the Heart of Gender Disparity: With a Focus on Coronary Heart disease | Poster Presentation |
| Brady Newman | How is positional polarization shown when discussing Canada as a '51st state' on Twitter (X)? | Poster Presentation |
| Amandeep Pannu | Networked surveillance of patients found Not Criminally Responsible | Oral Presentation |
| Fiella Phillip | The Impact of Social Media Influencers on Ethical Consumption | Poster Presentation |
| Kasunee Ranasinghe & Sarah Al Zeeb | Women at the Crossroads: The Sociocultural and Religious Impacts of Sexual Education in Ukraine | Oral Presentation |
| Alyssa Rhodes | The Earth Speaks: Cultural Trauma and Climate Change Narratives in Media | Oral Presentation |
| Alyssa Rhodes | Why Buy? The Impact of Social Media on Young Consumers' Perceived Environmental Responsibility | Poster Presentation |
| Ezra Richards | Normalization and Civility: Attitudes and Trends Around Mask-Wearing among MacEwan Students in Fall 2024 | Poster Presentation |
| Ezra Richards | Transgender and Nonbinary Representation in Youth-Rated Animated Television: An Honours Research Proposal | Oral Presentation |
| Ezra Richards & Sam Micka | "Thrown in the Deep End": Reflections on Conducting Undergraduate Research with Vulnerable Populations | Poster Presentation |
| Aiden Rosner-Swan | How the Lack of Social Programs Affects Maternal Care for Canadian Indigenous Women and the Role of Online Support Spaces. | Poster Presentation |
| Suhana Samshood | Student Engagement in MacEwan University's BIPOC Student Clubs | Poster Presentation |
| Jasmine Shillinglaw | Indigenous Men's Media Portrayal in Relation to Crime in Canada | Poster Presentation |
| Mary Templado | How do School Board Policies Frame the Role of Gen AI in the Education System? | Poster Presentation |
| Mary Templado & Kiara Bruynooghe | Egg Donation in Ukraine: A Reflection of the Commodification of Women's Labour and Gender Inequality | Oral Presentation |
| Kirpal Thind & Aviva Aviva Addo | Faith Femininity and Force: The Intersection of Religious Control Gender Inequality and the Carceral System | Poster Presentation |
| Matthew Zaborniak | The Canadian Graffiti Subculture | Oral Presentation |

## Studio Arts

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| Aleesha Amjad & Theo Donavan | Safekeeping | Poster Presentation |
| Carolina Gonzalez Escamilla | Making and Using Natural Textile Dyes with Mesoamerican Methods | Creative Installation |

# CEO Pay Ratio and the Gender Divide

**By:** Soraya Stewart

This study examines gender disparities in CEO compensation and CEO-to-median-worker pay ratios in the United States. Using data from publicly traded firms between 2019 and 2023, we analyze how CEO compensation and pay ratios vary between male and female executives across industry sectors and over time. Applying descriptive statistics, t-tests, and data visualizations, we find that although female CEOs remain significantly underrepresented in leadership roles, their compensation often exceeds that of their male counterparts across industries and years. The CEO pay ratio—a measure of internal pay inequity—is also higher for female CEOs. These findings highlight the need for further investigation into the causes of such gender-based discrepancies.

**Faculty Mentor:** Dr. Rahat Jafri

# An Investigation of the Correlation between Social Media Usage and a Low Self-Esteem Score

**By:** Nazia Laghari

The average time spent daily on social media is roughly 2 ½ hours such an amount of exposure can cause detriment to an individual's self-esteem (Chaffey 2022). A correlation study is conducted to determine if there is an association between social media usage and low self-esteem score. Participants anonymously self-reported both variables through a google form that was distributed via convenience sampling. Self-esteem was measured through the Rosenberg Self-Esteem Scale and time spent on networking sites was measured by daily and weekly usage. Microsoft Excel was exercised to construct a linear regression model and other statical tests (ie. computing Pearson R-value). An insignificant association was found between the two variables; daily usage of Instagram and Tiktok revealed a positive correlation strength of 0.205 while weekly use had negative correlation strength of 0.172. It must be advised that there are several limitations in this study thus the findings are in no way conclusive.

# Effects of Pets Assisting with Students' Success (PAWSS) program at MacEwan University

**By:** Abby Oloriz

This research study is an evaluation of the Pets Assisting with Students' Success (PAWSS) program at MacEwan University. We need research on the effectiveness of low barrier interdisciplinary campus services that help students such as animal-assisted therapy (AAT) on campus (Ecclestone et al. 2023). However there are no studies published specifically that explore the benefits of animal-assisted interventions in post-secondary education such as the PAWSS program. We used qualitative methods and quantitative methods; specifically online surveys with student and staff participants after their PAWSS sessions. This qualitative phenomenological approach provided data on participants' experiences and insights on their lived experiences. We identified themes and patterns in participants' experiences during and after PAWSS sessions. Research participants voluntarily signed up and were provided with an informed consent form and the study has been approved by the Institutional Ethics Committee. According to the research project findings PAWSS program participants reported enhanced mental health stronger social connections reduced stress and increased well being after engaging in sessions with dogs and cats. Participants also recommended broader advertising of the PAWSS program and increased availability of sessions across the campus. Furthermore we are currently using measures for the levels of stress and mood before interacting with the PAWSS and after attending sessions over 3 and 6 months (Spielberg et al. 1983; Cohen et al. 1983). The measures are The Perceived Stress Scale (PSS) and Positive and Negative Affect Schedule (PANAS-SF) and we will report the result in the poster.

**Faculty Mentor:** Dr. Anna Rissanen

# An Integration of Cultural Safety in Canadian Higher Education: The Experiences of Nursing and Social Work Faculty

**By:** Mehakpreet Singh & Nasrine Sajay

The Truth and Reconciliation calls to actions are expected to improve health care outcomes for Indigenous people. Moreover there is an increasing diversity in the Canadian population due to influx of immigrants from diverse cultures and different parts of the world. This diversity is reflected in the populations that require nursing care and social work services. However reports indicate that health care and social services inequities exist for these populations because of political societal economic injustices such as colonization and racism. The health care and social services inequalities have significant impact on access the quality of care and the health outcomes for these populations. Human service disciplines such as nursing and social work need to engage with a pedagogical approach that embraces individual uniqueness fully instead of the traditional approach of disregarding service users' perspectives. This study explored the integration of cultural safety in nursing and social work curriculum in Canadian post-secondary education. In a poster presentation we will present the preliminary findings of our ongoing study and the emerging themes that highlight the barriers that the nursing and social work faculty face in integrating cultural safety in their curriculum and teaching practices. The findings of the study provide an insight into the barriers to best practices regarding the integration of cultural safety in social work and nursing education programs and the knowledge that is critical shaping policies to support social work and nursing faculty in their teaching roles and engagement with diverse populations in their practice.

**Faculty Mentors:** Dr. Oyelana Bisi, Dr. Hellen Gateri & Dr. Elizabeth Burgess-Pinto

## Anthropology, Economics, and Political Science

# A Cross-Cultural Examination Of The Alchemical Origins Underlying Medicinal Uses Of Mercury Across Eurasia

**By:** Felix Bentley

This study aims to investigate the different cultural perspectives that underline historical uses of mercury in medicine across Eurasia in the pre-industrial period. In attempts to compare and contrast the differences and similarities between these medicinal uses of mercury this project reviews literature exploring the developmental origins of medicine from several general regions including China India the Mediterranean the Arabic world and Europe. This investigation shows that Eurasian medicinal uses of mercury are closely related to alchemical philosophy and deeply intertwined with spirituality. The results of this investigation show that uses and perceptions of mercury were highly similar across the continent having been viewed as an element imbued with supernatural and transformational power and likely developed due to centuries of academic and cultural exchange between major centres of civilization.

**Faculty Mentor:** Dr. Treena Swanston

# Artificial Intelligence in Government: Evaluating Workforce Transformation Ethical Challenges and Public Sector Adaptation

**By:** Brandon Biglow

This study examines the integration of Artificial Intelligence (AI) in Canadian government operations emphasizing its impact on public servants ethical considerations and institutional adaptation. Employing a quantitative survey methodology this research analyzes how AI reshapes job roles workflow efficiency and decision-making within public administration. The study addresses critical concerns such as data privacy algorithmic bias and ethical governance supported by empirical findings and theoretical frameworks. Additionally it highlights psychological impacts like technostress and social desynchronization affecting employee well-being and organizational trust. Findings indicate that public servants believe that while AI significantly improves efficiency and public services successful implementation hinges on transparent ethical standards robust governance and strategic workforce training. By aligning technological advancements with human-centric public administration principles governments can responsibly deploy AI enhancing both operational efficiency and public trust.

**Faculty Mentor:** Dr. Brendan Boyd

# Evaluating Alberta's Weed Control Legislation: A Jurisdictional Analysis of Gaps and Biodiversity Impacts

**By:** Brandon Biglow & Jayden Secrist

Effective weed control is essential for maintaining ecological balance protecting agricultural productivity and preserving biodiversity. This report evaluates Alberta's weed control legislation in comparison to other jurisdictions identifying key gaps and shortcomings that may impact biodiversity conservation efforts. In addition to a jurisdictional scan we reviewed multiple noxious weed outbreaks across Alberta to assess how legislative gaps contribute to their spread and persistence. Our analysis examines the effectiveness of Alberta's policies in addressing invasive species enforcement challenges and ecological impacts. The findings highlight regulatory deficiencies and enforcement shortcomings that may hinder effective weed management. This report provides recommendations for policy refinement to ensure a more balanced and sustainable approach to weed control and biodiversity conservation in Alberta.

**Faculty Mentor:** Dr. Marielle Papin

# How do Albertan's View the Public Service?

**By:** Emily Boivin

The purpose of this chapter is to gain insight into the beliefs values and assumptions that Albertans have about the public service and how those compare with the small government and market-oriented values expected based on the traditional understanding of the province's political culture. Our research question is: To what extent do Albertans' opinion attitudes and values regarding the public service conform or diverge from those prescribed by Alberta's political culture? We begin by outlining the elements of Alberta's political culture which could shape attitudes and perceptions related to the public service. Then we briefly describe some characteristics of public services in Alberta including federal provincial and municipal before using public opinion data from the Viewpoint Alberta survey to assess attitudes towards the public service. We then compare these attitudes to what could be expected given the traditional Alberta political culture. We find that most Albertans have confidence in the public service but there are differences based on party and political identification about its role and

relationship to the private market. We also found significant apathy towards the public service among many respondents suggesting that the role of the public service is not a priority to many Albertans.

**Faculty Mentor:** Dr. Brendan Boyd

# How does Climate Change affect Edmonton's Indigenous Communities and What can be Done to Reduce these Effects?

**By:** Matt Clark & Lula Bouzayhuel, **Kon Kon, Bilan Mohamed**

Edmonton has many problems. Debates over whether it is possible to achieve affordability sustainability adaptation and climate change mitigation at the same time are just a few examples. What would it look like for Edmonton to change and are there examples that can be borrowed even if they are from a different system? These are the questions this presentation seeks to answer by looking through the lens of Edmonton's indigenous communities. By analyzing the impacts of climate change on Edmonton's nearby indigenous populations we can determine the closest vulnerabilities that Edmonton faces. Specifically we look at impacts of climate change on indigenous access to land adaptation and mitigation planning and the impacts of climate change on health.

**Faculty Mentor:** Dr. Marielle Papin

# "Taking over space": A look into Students Spatial Capital at Campus Cafes

**By:** Renee Ethier

The population of MacEwan University is growing rapidly and in 2023 new statistics showed enrollment increased 15-16% over 2022 (MacEwan Annual Report 2024 p. 8). Student study spaces are becoming more crowded and finding a space to study is becoming a struggle. Over the last four months analyzing four different campus coffee shops through participant observation I integrated both Ryan Centner's concept of spatial capital (2008) and Henri Lefebvre's spatial triad (1991). I used Lefebvre's spatial

triad to help understand how spaces are used versus their intended use and Centner's spatial capital to understand and analyze how students can "take over" space by using their economic social and cultural capital. By doing so I studied The Bean's List Starbucks Tim Hortons (located in building 6) and Deville. I selected these cafes based on the spaces they occupy their popularity among students on campus and the amount of open study space around them. My findings reveal that built space greatly influences how students interact within these places; however students' unique uses may influence how we (as students) experience these spaces in where we choose to study.

**Faculty Mentor:** Dr. Jennifer Long

# Impact of Cochlear Implants: A Threat or Tool for Deaf Identity?

**By:** Eman Farhan

This paper explores various perceptions and beliefs surrounding CIs and their impact on deaf identity in hopes of enriching the knowledge on the interplay of deaf identity culture technology and society's tendencies towards medicalization (McMenamin et al. 2023). The ongoing discourse within the deaf community regarding cochlear implants (CIs) reveals a significant tension between cultural and medical viewpoints. CIs transform sound waves into electric signals that stimulate the auditory nerve and they allow hearing in people with moderate and severe hearing loss. However their first use during the late 1990s created tremendous concerns for many deaf people and advocates who view CIs as not only medicalization devices but also represents a way to "fix" deafness; a condition they believe should be celebrated as a natural identity rather than treated as a deficiency (Bathard 2014; Friedner 2022). Research has shown how many individuals within the deaf community experience cultural identity concerns primarily because they fear CIs will promote forced assimilation into the hearing world and eventually damage their unique linguistic and cultural identity (Goldblat & Most 2018). Many view deafness as not a deficit but rather as a natural identity leading to reluctance in embracing CIs (Harris et al. 2023). Individuals with CIs often navigate a bicultural identity that embraces both d/Deaf and hearing worlds which can complicate their social interactions and self-perception (Boisvert et al. 2023; Kobosko et al. 2018). Through autoethnography and interviews with CI users I discuss the dynamics of these discourses among adults in Alberta and B.C.

**Faculty Mentor:** Dr. Jenanne Ferguson

## Addressing Climate Change Through Building Repurposing

**By:** Alicia Farvolden, Danny Fehr, Levi Zimmerman, Stephan Vasquez & Jonathan Hernandez Barrientos

The city of Edmonton is predicting a population of 2 million residents by 2065. To accommodate the influx of new residents while being climate resistant we looked at repurposing buildings into mixed-use properties including residences emphasizing green technologies.

**Faculty Mentor:** Dr. Marielle Papin

## Employment Challenges and HIV/AIDS: Experiences of Black/ African Women in Edmonton Alberta

**By:** Shaula Garingalao

Employment for Black/African women living with HIV/AIDS is a crucial socioeconomic predictor of health that helps explain health behaviours health outcomes and HIV transmission. This paper will present the preliminary data of an ongoing study that explores the barriers faced by Black and African women in Edmonton Alberta who are living with HIV and finding employment and accessing financial resources.

The study findings indicate that these women experience barriers to finding employment due to immigration status lack of knowledge of employment support programs and discrimination based on their race. These findings will be shared with service providers working with these groups and other people living with HIV (PLWH) to enhance the existing intervention programs to support all PLWH to find and retain employment which will ultimately improve their health income and HIV treatment and support.

**Faculty Mentors:** Dr. Doriane Intungane & Dr. Hellen Gateri

# The Benefits of Expanding and Increasing Accessibility of Green Spaces in Edmonton

**By:** Idylle Issack-Ibrahim & Mical Ghebresilasie

Climate-safe infrastructure concept for urban areas in Edmonton.

Vision: Revitalize Edmonton's downtown core by creating climate-just urban green spaces enhancing community resilience and aligning with municipal and provincial goals.

What is the problem?

Unequal Access to green spaces in Edmonton's downtown core suffer from limited parks higher heat exposure and poor air quality due to industrial proximity and traffic. This exacerbates climate vulnerable communities for low-income and Indigenous residents.

Climate Vulnerability: These areas face intensified urban heat islands air pollution and socioeconomic stress with fewer resources to cope compared to wealthier neighborhoods.

Downtown Core Decline: Economic stagnation and lack of green infrastructure deter investment and community well-being undermining revitalization efforts.

**Faculty Mentor:** Dr. Marielle Papin

# The Circulation of Buddhist Sermons and Poetry within NPP Rallies in Sri Lanka

**By:** Suhiry Kaluhennadige

This presentation examines the relationship between poetry and language within the context of Buddhist sermons in the Sri Lankan political sphere. I analyze several bana or Buddhist sermons to show how they are used within a contemporary environment to challenge moral and spiritual guidance in the wake of economical and political uproar. Sri Lanka's economic crisis in the midst of the pandemic created financial difficulties that permeated every household. Due to worsening conditions riots and protests began calling for change leading up to the 2024 presidential election. The National People's Party's use of religious leaders as a "face" in their political campaign during the 2024

presidential election employed Buddhist monks to speak at rallies. These monks utilized preaching and poetry to engage with local and regional communities to challenge and invoke change through votes. The NPP history in the past and their actions have prevented them from holding a majority government so their movements in the Aragalya pushed for political and religious figures to speak to protestors to gain support. In this presentation I discuss how these presidential campaigns in Sri Lanka use the power of poetry and preaching to invoke moral and spiritual change with the goal of creating stability across Sri Lanka. Culture and social identity are intertwined in religious bana and Buddhist monks have been agents promoting and indexing change. I show how calls for social and political change are expressed through referential expressive and poetic functions in both the Sinhalese and Pali languages.

**Faculty Mentor:** Dr. Jenanne Ferguson

# Community-Based Toolkit For Tackling Biodiversity Loss

**By:** Carmen Keith, Gavyn Janke, Mabel Adesopo & Oliver Patton

A review of the City of Edmonton's existing biodiversity strategy and subsequent recommendations for individuals to get involved in solving the issue of biodiversity loss.

**Faculty Mentor:** Dr. Marielle Papin

# Birth Policy and Power: Indigenous Experiences of Obstetric Violence Colonial Policies and Reproductive Justice in Canada

**By:** Jordan Laframboise

Throughout the history of colonization in Canada, Indigenous childbirth has been a site of medicalization and racialization; a legacy that still lives on today. Indigenous perspectives treat birth as a holistic, ceremonial, and community-centred event; however, this has been disrupted by Western biomedical frameworks that construct birth as a physiological process and a site of risk. The risk discourse incited by biomedical frameworks has been used as justification for colonial policies such as evacuated birth,

which forcibly removes Indigenous women from their communities to give birth in a hospital away from their familial support systems, community, and traditional land. Evacuated birth and other colonial policies are forms of obstetric violence as they cause harm within contexts of pregnancy and birth, disrupting Indigenous ways of knowing and being, isolating people from their communities, and limiting Indigenous women's autonomy.

My research explores the pathways that exist for Indigenous reproductive justice and the decolonization of Indigenous maternal health services and policy in Canada, particularly through returning birth to Indigenous communities and re-centring Indigenous knowledge. Community efforts such as Indigenous-led midwifery programs have already begun successfully challenging colonial narratives that frame birth as a risk. I adapt the Indigenous Socioecological Birth Model to analyze how the tensions between Western and Indigenous ways of knowing impact Indigenous maternal health, autonomy, and relationality. The holistic perspective provided by anthropology allows for the examination of colonial policies, experiences of obstetric violence, and Indigenous reproductive justice to inform the development of policies that better support culturally safe birthing practices and restore self-determination in Indigenous communities.

**Faculty Mentor:** Dr. Leslie Dawson

# An Osteobiography of a Dog in the Woods and Possible Entanglements with Humans

**By:** Jody Reyes-Muralles

Osteobiographies of humans use skeletal markers to interpret their lived experiences. Analysis of other animal skeletons can also reveal how they lived including what impacts humans may have had upon them. My research presents basic life history information on a young female dog whose partial skeleton was recovered from the forest floor in central British Columbia including body type-breed developmental pathologies and injuries. The results may provide insight into some of the dogs' entanglements with humans such as provisioning care training and post-mortem treatment.

**Faculty Mentor:** Dr. Paul Prince

# The Rise of the 4B Movement: Reimagining Futures Through Radical Resistance

**By:** Ash Schepens

Following the 2024 U.S presidential election the 4B movement — a South Korean feminist movement which is characterized by women's refusal to participate in dating marriage childbirth and sex with men  — has experienced increased popularity in the West. Naturally this inspires questions of what the 4B movement is how it originated and what its objectives are. Asking these questions is necessary to avoid an oversimplification and/or Western co-optation of the movement. Through examining the historical contexts of Korean feminism alongside modern socioeconomic conditions and online activism this paper argues that the 4B movement can be conceptualized as a distinct radical feminist movement that responds to multiple intersecting power structures. By analyzing how the state capitalism and patriarchy work in concert to control women's bodies and futures the 4B movement's counter-participation presents itself as political resistance aimed at reclaiming women's autonomy and envisioning new feminist futures outside of patriarchal constraints.

**Faculty Mentor:** Dr. Chong Su Kim

# Path to Peace: Contrasting Approaches to Reconciliation and Transitional Justice.

**By:** Jaden Secrist

This project examines how the local and international systems of justice develop in post-conflict societies. In this project I am using interview data to examine how the legal frameworks/ mechanisms of transitional justice change between international and grassroots perspectives. The research begins with the wave of international criminal justice developments in the 1990s to address growing violence and human rights abuses in post-conflict societies. This led to drafting the International Criminal Justice Tribunal for Former Yugoslavia (1993) and a shift in approaches to national reconciliation as individual perpetrators were subjected to retributive trials and persecutions. This trend continued with the International Criminal Tribunal for Rwanda (1994) development which inspired restorative and community-based approaches to facilitate healing. The effectiveness of these tribunals was heavily debated across the international sphere leading to the expansion of national governance throughout the

2000s towards independent systems of dispensing justice and holding human rights abusers accountable (The Gacaca Courts Bosnian War Chamber). This project therefore asks the question: how have these local approaches to transitional justice facilitated reconciliation compared to their international counterparts in post-conflict societies?

**Faculty Mentor:** Dr. Jeffrey Rice

# Principal Agent Theory-An outlook Into Irans Foreign Policy in The Middle East

**By:** Abdullah Sendyan

Foreign Polices are the driver of regional and international changes, so profound and powerful their effects are seen and heard across time and space. Thus its only right we devote considerable resources and time to the analysis and exploration of this particular facet of the international political system one that has the ability to alter political landscapes and reshape regions completely and permanently.

**Faculty Mentor:** Dr. Jeffrey Rice

# LAVA is still MAGMA: Musings on ArchaeoGaming Methodology and AI

**By:** Hailey Sikstrom

Archaeogaming is the application of archaeological methodology to understand and preserve the history of video games. One of the issues within this field is the narrow scope of research conducted often focused on singular games or consoles rather than the full assemblage of artifacts. The Framework for the Analysis of Games (FrAG) through treating the code of the games themselves as artifacts offered the basis of a new form of research using custom reverse engineering software developed specifically for obtaining code as the games are played and demonstrated proof of concept through the use of AI to play Atari 2600 games. The question remains on the efficacy of AI in exercising these games however so the objective of this research the Large-scale Archaeological Videogame Analysis (LAVA) is to obtain a dataset from human participants that are challenged to beat the prior AI benchmark for comparison. LAVA

uses a well-established research site to access an anonymous pool of human participants to play through eight classic Atari 2600 games. Before opening the testing to the public we tested ourselves on the LAVA software and revealed some interesting considerations when conducting user-driven experiments online. Factors such as time limits use of saving progress or not and how detailed the instructions should be provided to the user were among some of the research design hiccups encountered.

**Faculty Mentor:** Dr. Katie Biittner


## Biological Sciences

# Comparative analysis of single vs. multiple gRNA on NGN3 expression using a controllable dCas9-VP192 activator (CRISPRa)

**By:** Nicholas Abdilmasih

This study investigates the gene expression induction efficiency of single versus multiple guide RNAs (gRNAs) targeting the NGN3 gene using the CRISPR activation system in HEK293 cells. The study aimed to contribute to optimizing the use of gRNAs in gene therapy applications particularly in treating diseases like diabetes where precise gene regulation is essential. The experimental design involves culturing HEK293 cells and once they reach approximately 70-80% confluence cells were transfected with specific gRNAs targeting the NGN3 gene promoter. Specific gRNAs targeting the NGN3 promoter that were previously designed incorporated into plasmid clone cassettes and introduced into HEK293 cells through co-transfection using pCAG-DDdCas9-VP192-EGFP transactivator. Post-transfection cell viability and fluorescence werenmonitored to assess transfection efficiency. RNA was extracted converted to cDNA and analyzed via qPCR to measure NGN3 expression levels. Results indicated that specific combinations of fewer gRNAs led to higher NGN3 activation compared to multiple gRNAs challenging the assumption that more gRNAs result in synergistic gene activation. These findings suggest that optimized gRNA combinations can enhance gene therapy efficiency potentially leading to more effective treatments for conditions like diabetes.

**Faculty Mentor:** Dr. Habib Rezanejad

# Using Trail Cameras to Detect Franklin's Ground Squirrels in Alberta

**By:** Erin Arnason

The Franklin's ground squirrel lives in parkland and southern boreal habitats in Alberta and it is currently listed as "undetermined" (data deficient) in the province. However naturalists in Alberta are concerned that this species may be in decline. Data submitted by the public supports this concern when compared with historical data collected by museums but the public primarily made observations in provincial parks and it is unclear if this represents the current distribution of Franklin's ground squirrels or simply where the public spends their time. This species can be difficult to locate as it prefers dense vegetation so we set out to determine whether trail cameras could effectively detect Franklin's ground squirrels. We set up trail cameras at various locations around central Alberta where this species had been previously detected using citizen science and field data collection. In these locations we determined whether Franklin's ground squirrels could be detected using unbaited cameras and trail cameras baited with peanut butter. We determined that baited trail cameras are an effective tool to detect this elusive species and we plan to expand trail camera sampling in the future to better document its distribution in Alberta.

**Faculty Mentor:** Dr. Jessica Haines

# Investigating the MlaYZ system that maintains outer membrane lipid asymmetry in Pseudomonas aeruginosa.

**By:** Taylor Arnell

The outer membrane (OM) of Gram-negative bacteria displays an asymmetric bilayer of glycerophospholipids (PLs) distributed in the inner leaflet and lipopolysaccharide (LPS) in the outer leaflet. Maintaining this lipid asymmetry is crucial to the cell's integrity and functionality as it provides a barrier against toxic environmental stressors such as antibiotics. How this lipid asymmetry is maintained has primarily been investigated within Escherichia coli resulting in a

poor understanding of the mechanisms involved within other bacterial species. Consequently this work investigates the opportunistic pathogen Pseudomonas

aeruginosa. Previous research recently identified new Mla proteins MlaY and MlaZ that are thought to be involved in maintaining lipid asymmetry. More specifically it is believed that MlaZ removes PLs from the outer leaflet and transfers them to MlaY to be degraded. However how PLs are transferred from MlaZ to MlaY remains unknown. We hypothesize PLs are removed from the outer leaflet through direct protein-protein interaction between MlaZ and MlaY. Here we developed functionally tagged MlaY and MlaZ proteins by genetically engineering the mlaYZ operon such that sufficient machinery is generated to visualize whether an interaction is occurring using western blot analysis. MlaY was successfully tagged with the identifiable marker β-lactamase and MlaZ was tagged with streptavidin such that they can be visualized to investigate whether they interact using pBPA photocrosslinking. This research furthers the current understanding of how lipid asymmetry is maintained within P.aeruginosa to provide insight into our understanding of how the OM protects Gram-negative bacteria from antibiotics.

**Faculty Mentors:** Dr. Randi Guest & Dr. Kimberley Harcombe

# Characterization of ATP-binding DNA aptamer by DMS footprinting

**By:** Farah Assaf

The aim of this project is to characterize the ATP-specific DNA aptamer to confirm that it undergoes a conformational change upon ATP binding. We will use the technique of DMS footprinting to demonstrate the conformational change. The results will be applied to the development of a biosensor for ATP detection. The findings of this proof-of-concept study may be extended to the design of sensors for other molecules of interest such as toxins and metabolites.

**Faculty Mentor:** Dr. Nina Bernstein

# Evaluating fence permeability and seasonal mammalian movement in Elk Island National Park

**By:** Analise Beatty

Habitat fragmentation caused by roads and fences is a key issue in conservation as it can restrict wildlife movement isolate populations and reduce genetic diversity ultimately posing significant challenges to both wildlife and habitat connectivity. Understanding how different species respond to such barriers is essential for maintaining a healthy ecosystem and preventing populations from becoming isolated. Elk Island National Park (EINP) located east of Edmonton Alberta is a fully fenced conservation area which helps keep bison populations contained and protected from disease. Over time various factors such as animal digging natural processes and human activities have created gaps under the fence. These gaps allow wildlife to move in and out of EINP while still keeping the bison enclosed. Using camera traps installed at fence gaps we intend to analyze crossing events over a one-year period to identify trends in how different mammalian species navigate barrier permeability and how their movement patterns differ seasonally. Preliminary results revealed that carnivores utilized the fence gaps significantly more than herbivores and that mammals crossed the fences more in winter and spring than in summer. These findings aim to inform fence management practices within EINP offering valuable insights into the role of fence permeability in wildlife population control while maintaining ecological connectivity.

**Faculty Mentor:** Dr. Arthur Whiting

# Frequency of rattle call use in relation to density

**By:** Gurmun Brar

North American red squirrels produce a variety of sounds while moving through their environment. One of these vocalizations is the rattle call which may be used for territory maintenance. If this is true then we may expect that times in which territory protection is important we should find more incidence of rattle calls than other types of vocalizations. This project will be a continuation of work conducted in the Fall 2024 term. During this portion of the project data will be collected on the frequency of rattle calls produced in areas with differing squirrel densities. In the fall semester frequency was measured in relation to season and during this project a interesting phenomenon was observed. It seemed that areas in which squirrels were released or 'dropped' resulting in higher population densities calls seemed to occur more frequently. As a result fieldwork will be conducted at the same location with our previously established population to explore the potential density dependent production of rattle calls.

**Faculty Mentor:** Dr. Shannon Digweed

# Inducing Beta-Cell Transdifferentiation Using CRISPR-on Technology in Type 1 Diabetes

**By:** Madelaine Britt

Diabetes mellitus including Type 1 diabetes (T1D) is a significant global health concern. Treatments are limited by cost donor shortages and immune rejection in beta-cell therapy. With novel applications of CRISPR biotechnology an inactive form of Cas9 (dCas9) fused to the transactivation domain VP192 can be used to induce the expression of target genes. We hypothesize using CRISPR activation (CRISPRa) technology to increase the expression of pancreatic endocrine transcription factors to induce the differentiation of PANC-1 cells into beta-like cells to produce insulin. Plasmid DNA containing gRNAs for NGN3 PDX1 MAFA and PAX6 transcription factors were co-transfected with the CAGDDdCas9-VP192-T2A-EGFP plasmid in the human pancreatic cancer model cell line PANC-1 isolated from pancreatic ducts. Upon gene expression analysis using qPCR preliminary results revealed that the gRNAs induced the expression of NGN3 PDX1 MAFA PAX6 and insulin induction to a greater extent likely promoting the transdifferentiation of PANC-1 cells into beta-like cells. These findings would contribute to further research in primary human ductal cells and lead to potential treatments to induce beta-cell production for T1D patients.

**Faculty Mentor:** Dr. Habib Rezanejad

# Applied Behavioural Enrichment and Care in Wildlife Rehabilitation

**By:** Max Buchanan

Wildlife rehabilitation centers support wildlife conservation by treating and temporarily caring for injured diseased and displaced indigenous animals with the ultimate goal of releasing healthy animals back into their natural habitats (Miller 2012). This project aims to increase the quality of care provided by casual wildlife rehabilitation workers at a northern Alberta wildlife rehabilitation center. By developing three species-specific care guides for the American Red Squirrel Black-Billed Magpie and Swainson's Hawk this project addresses the species-specific physiological cognitive and releasability needs of each species. The care guides will be informed by scientific literature wildlife

rehabilitation journals lectures and existing resources within the target wildlife rehabilitation center. The goal is to empower volunteers with accessible up-to-date and scientifically grounded information enriching the volunteer experience therefore improving patient care. Successful implementation of this project could serve as a model for other species ultimately contributing to the overarching conservation goals of wildlife rehabilitation centers.

**Faculty Mentor:** Dr. Shannon Digweed

# Trail Camera Use for Conservation of Franklin's Ground Squirrels (Poliocitellus franklinii) in Alberta Canada

**By:** Julia Hebert

Franklin's ground squirrels (Poliocitellus franklinii) within the Alberta range have been noted as experiencing a decline by concerned naturalists. However an undetermined species' status is assigned due to the lack of available data regarding the species. Therefore the study intends to explore if trail cameras are a viable detection method for monitoring the species. The study includes seven locations that have confirmed Franklin's ground squirrel sightings to attain detection success and determine if a preference between baited and unbaited sites is present. I hypothesize that the baited traps will detect more sightings than the unbaited which would assist in a greater understanding of the species' presence at the varied sites. I used preliminary data from citizen science sightings from iNaturalist to determine trail camera placement at three varied distances based on the original recorded detections to examine the species range distribution. The study will contribute to the current lack of data to better understand the species' presence or lack thereof within the Alberta range. Which can provide context to optimize future field studies for the conservation needs of Franklin's ground squirrels.

**Faculty Mentor:** Dr. Jessica Haines

# The Effects of Fence Permeability & Habitat on Carnivore and Herbivore Crossings at Elk Island National Park

**By:** Nicolas Mannarino

The restriction of mammalian movements can be utilized as a management tool to contain a target species of concern isolate populations from disease and reduce human wildlife conflict. However unintended long-term consequences may result from the utilization of impermeable barriers on the landscape. The implementation of fences can cause habitat fragmentation a reduction in predator species overpopulation genetic depression and a loss of biodiversity. These negatives have become a concern in recent years and the efficacy of fencing as a management tool has come into question. To better understand the impact a fenced area has on a landscape we have begun research in collaboration with Elk Island National Park (EINP) and the Friends of Elk Island Society (FEIS). This research will investigate the permeability of the parks surrounding fence the species utilizing fence gaps and the consequences that the fence has on mammalian movements as a result of habitat fragmentation. The permeability of the fence itself is in question and a study design using 14 trail cameras has been implemented to better understand the effects of fence permeability on the movements of carnivores and herbivores at EINP. With a year-long recording data pool a full picture of the fences impacts can be used to inform management decisions of park staff to improve the ecology and biodiversity of this important national park.

**Faculty Mentor:** Dr. Arthur Whiting

# Identification quantification and timing of HOX gene expression during D. andersoni embryo development

**By:** Colby Mask

Clusters of orthologous HOX genes can be found in the genomes of most vertebrates and invertebrates. Since the sequences and functions of these genes are conserved across lots of different species HOX genes are often used by EVO-DEVO researchers to elucidate phylogenetic relationships that exist between species. Recently the genome

of the Rocky Mountain wood tick Dermacentor andersoni has been published on GenBank and within the genome seven putative HOX genes have been identified. However the expression of these genes has not yet been characterized. In this paper we characterize the timing and quantity of expression of three HOX genes HoxB4 HoxB5 and HoxA5 during D. andersoni embryo development. Using gel electrophoresis we have identified that there is continued expression of HoxB5 and HoxA5 throughout tick embryo development starting on day six and that HoxB4 is expressed intermittently throughout development starting on day zero. Currently qPCR is being used to quantify this HOX expression. This information will hopefully contribute to a better understanding of developmental gene regulation in ticks as well as the phylogenetic relationships that exist between ticks and other arthropods.

**Faculty Mentor:** Dr. Kevin Friesen

# Runs of Homozygosity Analysis in Galapagos Tortoises Using Whole Genome Sequencing

**By:** Cory Morrison

Runs of homozygosity (ROH) are regions of a genome that are homozygous for identical haplotypes which were inherited by both parents caused by inbreeding leading to a loss of genetic diversity. Whole genome sequencing (WGS) can increase the accuracy at which ROH patterns can be identified within a species which can be used to reconstruct demographic histories. These demographic histories can be used to understand changes in genetic diversity that can often result in lowered genetic fitness. Improvements in recent years using WGS have made studies on non-model organisms possible which have aided conservation efforts.

Galapagos tortoise is a keystone species of the Galapagos archipelago enhancing the diversity of the ecosystem around them through herbivory soil disturbances and seed dispersals. They live up to 200 years and are the largest terrestrial organism in the archipelago. Currently there are 12 extant species with six currently critically endangered species three endangered and three vulnerable according to conservation status. 3 species have gone extinct due to human overexploitation in the 18th to 20th centuries.

The goal of this research project is to analyze WGS data of 36 Galapagos tortoises taken from all 12 extant species (3 from each) and build a pipeline to identify ROHs across their genomes. The data has been provided by a previous study on differing

evolutionary rates and effective population sizes. Galapagos tortoises provide a unique opportunity to compare and examine ancestral and recent evolutionary forces on isolated and recently diverged species.

**Faculty Mentor:** Dr. Joshua Miller

# The Effect of Climate Change on Range Expansion of Mosquito Vectors and Arbovirus Transmission Season Length

**By:** Anna Ostergaard

Climate change is one of the most impactful elements mediating the range expansion of Aedes mosquitos and the length of the transmission season of mosquito-borne viruses such as dengue and yellow fever. Aedes mosquitos specifically Ae. albopictus and Ae. aegypti are invasive insects that can carry and transmit these viruses. Both species currently have established populations in the United States. Additionally since 2016 Ae. albopictus have established populations in Southwestern Ontario and Ae. aegypti have been identified during the summer months in the same region. This review based on an analysis of existing literature shows the past present and estimated future North American range of Aedes mosquitos along with the mechanisms of range expansion. Further the increase in the length of the transmission season of Aedes-borne viruses under the influence of climate change including dengue and yellow fever is explored. By 2100 much of the United States and parts of Southern Canada are predicted to have favourable environments for both Ae. albopictus and Ae. aegypti populations to thrive. Finally the length of the transmission season is likely to increase yearly as warmer temperatures become more consistent.

**Faculty Mentors:** Dr. Treena Swanston & Dr. Nour Moussa

# Investigating the Mechanism of Bacterial Resistance to Carvacrol in Oregano Oil

**By:** Sahiba Pahwa

Antibiotic resistance is a global health concern and natural compounds like carvacrol an active ingredient in oregano oil possessing antimicrobial properties appears as a promising alternative to traditional antibiotics. This study aims to investigate the mechanisms of carvacrol resistance in Pseudomonas Fluorescens (gram-negative) and Bacillus subtilis (gram-positive) bacteria both of which are food spoilage organisms and relevant to antibiotic resistance. The research objectives are to (1) determine minimum inhibitory concentrations (MIC) of carvacrol for both species (2) induce resistance by exposing them to sub-lethal concentration of carvacrol and (3) identify genetic and physiological changes associated with resistance. Resistance will be primarily assessed through anticipated changes in MIC post carvacrol exposure. Comparative analysis will explore the differences in resistance strategies between gram-negative and gram-positive bacteria. This research will contribute to understanding the specific mechanisms of carvacrol's antimicrobial action proving insight into combating antibiotic resistance in both clinical and agricultural setting.

**Faculty Mentor:** Dr. Benjamin Bourrie

# Examining Microplastic Ingestion in Soft bodied Corals

**By:** Inderpal Panjeta

Microplastic pollution is an emerging environmental threat with severe consequences for marine ecosystems. While most of the research has been focused on stony corals the relationship between microplastics and soft-bodied corals remains largely neglected. This study investigates the potential ingestion and retention of microplastics in Ricordea florida (Mushroom coral) a soft-bodied coral species to evaluate its vulnerability to microplastic pollution. Corals will be exposed to various types of microplastics under controlled conditions with a comparison of uptake to the ingestion of coral feed as well as between experimental groups of microplastics. Histological analysis and microscopy will be utilized to confirm the ingestion of microplastics within coral tissue. This project aims to determine whether or not R. floridans actively ingests microplastics as previous research associates the ingestion of plastic pollutants with several physiological detriments. Therefore findings from this research will provide essential insights towards the dangers of pollution and contamination in marine ecosystems as they result in widespread implications for various organisms and environmental functions through compromising coral health. Due to the increasing prevalence of microplastic in marine

environments this study advocates for the immediate need of conservation efforts and improved waste management strategies to decease plastic contamination in coral reefs.

**Faculty Mentors:** Dr. Ross Shaw & Dr. Matthew Ross

## Spatial Distribution of Trace Elements in Human Bone: Examining Pb Sr Cu and Fe Using SR-XFI

**By:** Shaye Parsons

The project explored the complex nature of bone tissue the process of bone remodelling and the retention of elements like lead (Pb) and strontium (Sr) which can localize into bone tissue because of their similarity to calcium during the remodelling process. Elements such as iron (Fe) and copper (Cu) were also examined because of their demonstrated role in bone metabolism. Using data from synchrotron radiation X-ray fluorescence imaging (SR-XFI) the project aimed to explore the spatial distribution of these elements in bone samples focusing on the differences in distribution between the elements per individual. The research design involved comparing scan patterns of diaphyseal femoral samples from seven individuals (four women and three men) aged 53-96 for each examined element. Individuals were found to have increased lead and strontium deposits along the cement lines of their osteons and increased copper and iron signals in blood-rich areas. This pilot project shed light on the biological differences in the elemental compositions of bones adding to our growing understanding of spatial element distribution in human bone tissue.

**Faculty Mentor:** Dr. Treena Swanston

## Identifying lactobacilli-yeast interactions in kefir fermentations

**By:** Rawlie Prince

Fermentation is among the most ancient methods of human preparation of food; this process can both preserve food and increase the digestibility of and or access to certain nutrients contains therein. Kefir is a fermented dairy beverage with many health benefits associated with its consumption. Many different organisms including multiple species of lactobacilli and yeast contribute to the production of kefir from milk. When either of

these organisms is removed from the fermentation process the associated health benefits are not observed. This finding suggests that interkingdom interactions between the yeast and the lactobacilli may facilitate the observed health benefits. To detect whether yeast-lactobacilli interactions are a determining factor in kefir community dynamics we examined specific pairwise interactions between 2 lactobacillus and 4 yeast species from a reconstituted kefir community. We examined both liquid and solid environments using appropriate monocultures as a control. We ran growth performance pH and colony morphology assays.

**Faculty Mentor:** Dr. Benjamin Bourrie

# Development of DNA Microsatellite Markers to Investigate Genetic Diversity of the Orchid Galearis rotundifolia

**By:** Farista Sairuv

Currently the planet is facing a steady decline in biodiversity which is particularly impacting plants. These losses have led to an increase in conservation efforts. Key to effective conservation strategies is an understanding of the genetic diversity within the vulnerable population(s). One tool that has demonstrated utility in assessing the genetic diversity of a population is DNA-based microsatellites. Microsatellites are repetitive DNA sequences based on a tandemly repeated DNA unit of two to six nucleotides found in the genomes of all eukaryotic species. This project aimed at developing microsatellite markers to assess the genetic diversity of the Small Round-leaved Orchid Galearis rotundifoia a terrestrial orchid native to Alberta at risk of extirpation. Using next-generation DNA sequences of a microsatellite enriched genomic DNA fraction from Galearis rotundifolia I developed and tested PCR primers that amplify 25 microsatellite loci. Appropriate amplification conditions for 11 of these microsatellites were determined. Each of these 11 loci have been evaluated using genomic DNA from several Galearis rotundifolia individuals to determine if the microsatellite locus is polymorphic. Microsatellite loci identified as polymorphic will be examined in a large number of individuals. The outcomes of this project will facilitate the larger scale evaluation of genetic diversity within targeted populations of Galearis rotundifolia and contribute to the conservation efforts for this species.

**Faculty Mentor:** Dr. David McFayden

## Instructional Videos as a Universal Design for Learning Strategy in Biology Labs

**By:** Lauren Tkalcic

Universal Design for Learning (UDL) is an evidence-based framework for creating a more inclusive learning environment for students particularly those with disabilities. There is a lack of research on implementing UDL in post-secondary science education. This study contributed to an ongoing Scholarship of Teaching and Learning project exploring and mitigating barriers to student learning in a second-year biology lab (Biology 205: Principles of Molecular Biology). The specific goal of this project was to develop supplemental instructional video resources to provide multiple means of representation in alignment with the UDL framework. I completed a literature review to determine best practices for accessible and inclusive video learning resources. I identified twelve topics for video creation based on my knowledge of the lab as a student and input from faculty teaching the lab. These videos included six in-lab skills two calculations and four Benchling software tutorials in which students develop skills in the analysis of DNA sequences. I wrote twelve instructional scripts recorded audio and filmed captioned and edited the videos. Transcripts were also created to accompany the videos which were posted on the Meskanas page starting in the Fall of 2024. Preliminary data has revealed some initial insights into student use and perceptions of these videos. Future work will include gathering additional student feedback to assess if these videos were beneficial to student learning creating additional videos and embedding these more fully into the lab curriculum.

**Faculty Mentor:** Dr. Melissa Hills

## Molecular cloning to create a FLOWERING LOCUS C (FLC):GREEN FLUORESCENT PROTEIN (GFP) expression vector to study its nuclear localization in Arabidopsis thaliana

**By:** Lauren Tkalcic

Proteins that regulate gene expression called Transcription Factors are synthesized in the cytoplasm and must be actively imported into the nucleus to interact with DNA. This active import often involves a short amino acid sequence in the protein called a Nuclear Localization Signal (NLS). Research into nuclear import is essential to our basic understanding of cellular function and impaired nuclear import can be linked to disease. Arabidopsis thaliana is an important model plant used for molecular biology research. One important developmental transition in plants is flowering. Correct flowering time is essential for reproductive success and plants respond to various environmental and internal cues when determining when to flower. FLOWERING LOCUS C (FLC) is a transcription factor that regulates flowering in Arabidopsis and its mechanism of nuclear import has not been characterized. My honours research is contributing to a project to explore the nuclear import of FLC and identify its NLS. To do this we are using a common methodological approach that fuses FLC to a GREEN FLUORESCENT PROTEIN (GFP) which allows us to visualize proteins in plant cells and determine whether FLC is in the nucleus. My honours work has involved a series of steps required to construct a gene in Escherichia coli that will express an FLC:GFP fusion protein once it is introduced into Arabidopsis. Future work will introduce this gene into Arabidopsis to visualize the location of FLC and create mutations to the FLC gene to determine which changes in DNA impact its import into the nucleus.

**Faculty Mentor:** Dr. Melissa Hills

# Insights into the Genetic Diversity of Northeastern Arctic Grayling Populations in Canada: A Foundation for Conservation Efforts

**By:** Morgan Warawa

In North America the freshwater fish species Arctic Grayling (Thymallus arcticus) have faced significant population declines in the eastern and southwestern parts of their distribution.

Previous research using mitochondrial DNA (mtDNA) and microsatellite variation to investigate the amount of genetic divergence within these populations has found at least two distinct lineages and proposed five designatable unit's (DU's) for conservation. However populations in the northeastern range of their distribution had yet to be sampled leaving critical gaps in understanding the genetic diversity of Arctic Grayling.

This research uses molecular biology techniques to extract and sequence a region of Arctic Grayling mtDNA in historical samples taken 37 years ago from Saskatchewan and contemporary samples from populations in Yukon and the Northwest Territories. Comparison of these newly generated sequences to prior samples allows us to gain insights into how Arctic Grayling populations have evolved and gain a more comprehensive understanding of their genetic diversity particularly in previously underrepresented populations. Understanding this genetic diversity will help clarify the number of genetic lineages present and inform the designation of DUs contributing to broader efforts to preserve biodiversity amid the ongoing biodiversity crisis. Furthermore this research demonstrates the value of historical DNA analysis in molecular ecology and future conservation efforts for at-risk species.

**Faculty Mentor:** Dr. Joshua Miller

# The Use of TLC Direct Bioautography to Examine the Antibacterial Properties of Invasive Weed Extracts against Bacillus subtilis

**By:** Harjot

"Antibiotic resistance is becoming a major global threat as more bacteria are becoming resistant to the first-choice antibiotics used against them. In this study, we examined noxious plants from Alberta for antimicrobial properties against Bacillus subtilis using TLC direct bioautography. Direct bioautography combines chromatography techniques like TLC with activity assays, which can reduce time and effort in identifying new antimicrobials compared to methods like repeated disc diffusion and fraction. Preliminary activity testing using agar disk diffusion identified Himalaya balsam with activity against B.subtilis. TLC plates were then spotted using the Himalayan balsam extract and developed using different solvent systems. These plates were either stained for visualization or dipped in bacterial suspension, incubated, and sprayed with MTT for visualization. Next, column chromatography was used to separate different fractions of the Himalayan Balsam extract. All fractions were visualized using stains and UV light to identify the range of fractions that could contain the antimicrobial compound(s) based on the bioautography results. Antimicrobial activity in the selected fractions was confirmed using disc diffusion. Based on NMR and GC-MS results, 1,4-naphthoquinone was the major compound present in the active fractions. Overall, this study

demonstrates the potential of noxious plant extracts as antimicrobial agents for treating bacterial infections and combating the problem of antibiotic resistance".

**Faculty Mentors:** Dr. Kimberley Harcombe & Dr. Tina Bott

## Child and Youth Care

# Exploring CYC Students' Experiences of Applying Decolonizing Knowledge in Their Daily Lives and Practice

**By:** Saron Kahsay, Salma Ahmed, Yordanos Dawit & Carol Nicholas

Child and youth care (CYC) education has an obligation to promote decolonial consciousness in students by identifying the dominant narrative in our society and to encourage them to examine the privilege given or denied to individuals and groups due to their identities including their race or culture. This process involves not only acknowledging the legacies of colonialism but also actively unlearning entrenched biases and harmful practices that persist in educational and professional settings. As society increasingly grapples with diversity equity and inclusion issues the need to confront outdated paradigms has never been more urgent. By examining the perceptions and experiences of students engaged in this learning process we can illuminate the pathways to more inclusive and equitable practices in CYC. This exploration is essential for fostering genuine support for black Indigenous and people of color (BIPOC) as it highlights the barriers to meaningful engagement with diversity and the transformative strategies necessary for systemic change. Ultimately our course-based research project explores CYC students' experience in applying decolonizing knowledge in their daily lives and in their practice with children youth and families.

**Faculty Mentor:** Rebecca Stiller

# CYCW Art Based History Project - Poverty in Edmonton

**By:** Emma Nagel & Elizabeth Heil

Poverty in Edmonton has impacted many different aspects of people's lives from 1980-present day. This is due to economic changes resources offered policies being put in place and the different governments. In the presentation we will explore what poverty looked like in Edmonton through different eras of time and how these time periods impacted people.

**Faculty Mentor:** Rebecca Stiller

## Communication

# An Analysis on Early Communication in Relation to Children's Language Acquisition Programs and its Effects on Language Development and Communication Skills

**By:** Viktorya Gyulinyan

This paper asserts the necessary and crucial element of early maternal communication between mother and child communication that is stimulating and engaging. This pivotal period should never be approached with passivity or apathy as it has been in recent years. This critical moment has increasingly been treated with negligence its enduring effects unacknowledged. The insensate conscience is deprived of linguistic acuity once confronted by the antithetical existence of automotive programs. As the developing mind is placed before an overwhelming inundation of sensory stimulation immersing the mind within engaging and addictive content inevitably the impending mind endures a simulatory trance as a fabrication of hyperstimulation. The disinterested conscience falls into passivity tainted by apathy inertly intaking insipid content. The vapid matter lingers within the incipient mind vitiating an air of lethargy within imminence averting the mind that had yet to become forging insentience. The purpose of the study lies in divulging facilitative schemes embedded within linguistic automated programs divesting the deterring effects while elucidating the beneficence found within implementing sentience through active engagement between parent and child. The methods used within this report include an extensive literature review presenting intensive experiential methodologies regarding an extensive research within automated programs in relation to a child's language acquisition analyzed through MRI scans which revealed neurological effects of early internalization. Major findings suggest children who actively

engage in sentient forms of communication towards their parents inceptively develop linguistic propensity.

**Faculty Mentor:** Vivian Giang

## Beyond the Screen

**By:** Uchechukwu Osineme

This study examines the evolving representations of Sherlock Holmes in media, focusing on the original Conan Doyle stories (1887–1927), BBC's Sherlock (2010–2017), and Netflix's Enola Holmes (2020–2022). By analyzing these adaptations alongside modern characters inspired by the Sherlockian archetype, the study explores how Hollywood's diversity efforts interact with identity formation, cultural power, and the shaping of societal narratives. Utilizing Stuart Hall's representation theory (1997), Henry Jenkins' convergence culture (2006), and critiques of Hollywood's performative diversity (Warner, 2018; Ahmed, 2020), the study assesses whether these adaptations genuinely advance inclusive storytelling or perpetuate tokenized representations. Through a critical analysis of the Holmes franchise, this research highlights the tension between market-driven diversity and authentic narrative change, investigating how representation functions within the broader cultural and institutional frameworks of the media industry. The study begins with an introduction to its scope, sources, and selected media adaptations, followed by a discussion of its theoretical framework. It then traces the historical development of Sherlock Holmes adaptations, situating them within broader shifts in media representation. Finally, the study examines the interplay between media production, audience reception, and cultural discourse to assess the limits and possibilities of diversity in contemporary Hollywood

**Faculty Mentor:** Dr. David Garfinkle

## AI in Journalism: Ethics Misinformation and the Future of News

**By:** Faith Tabladillo

As artificial intelligence becomes more integrated into journalism its impact on news production ethics and misinformation raises critical questions. This video essay part of

my final project for SUST 390 - Topics in Sustainability: AI and Sustainability explores the opportunities and risks AI presents in newsrooms. While AI can enhance investigative journalism and streamline reporting it also threatens job security challenges ethical reporting standards and contributes to the spread of misinformation. Weak regulatory frameworks and a lack of transparency further complicate AI's role in shaping public discourse.

Drawing from industry reports academic research and discussions with journalists this project examines how AI-generated content influences trust in media and what policies are in place to address these concerns. It also considers the ethical implications of AI's ability to alter narratives manipulate public perception and blur the lines between fact and fiction. By analyzing real world examples and newsroom case studies this video essay highlights the urgent need for stronger digital literacy AI disclosure standards and policies that ensure AI serves the public good rather than corporate or political interests.

**Faculty Mentor:** Dr. Tai Munro

## Computer Science

# Evaluating the Impact of Virtual Reality Training Simulations in Nursing Education

**By:** Jehdi Aizon

As part of their education nursing students are required to learn how to operate a variety of complex medical equipment which is often only accessible in classroom or laboratory settings. Students are required to master operational skills but are not able to access the equipment they need to practice. To address this issue we created a virtual reality IV pump training simulator so that students are able to practice anywhere for as long as they need in order to master the skill. The purpose of this research is to evaluate the potential effectiveness and impact of the VR simulation by determining student satisfaction with this method of practice and their perceptions of the effectiveness of VR for their learning. Research questions: Do students view the VR training simulation as an effective alternative to a physical IV pump for training purposes? Are there any barriers that might limit students' ability to access or use the VR simulation? How do students perceive the VR simulation in terms of effectiveness for learning? Our VR prototype was tested with current nursing students. This presentation will discuss the development study results and room for improvement.

**Faculty Mentor:** Dr. Sam Qorbani

# BONFIRES: A Video Game for Promoting Healthy Diet through Retelling Greek Myth

**By:** Keanu Burr

Junk food is becoming more accessible more widely produced and cheaper than the healthy alternative. In order to break these unhealthy habits "Bonfires" promotes a primary focus on healthy eating through aspects of gameplay. This paper presents the design and development of a persuasive computer game for promoting a sense of healthy eating by training the player to gravitate towards nutritious food and stay away from negative and unhealthy eating habits. The game was analyzed by a group of evaluators using a Heuristic Evaluation for Playability (HEP) approach. Conclusions based on the results of the feedback from this evaluation show that the game is highly effective in areas of playability and persuasive gameplay. It is expected that this game will provoke thought about the nature of diet in respect to one's ability to perform at an outstanding ability.

**Faculty Mentor:** Dr. Chinenye Ndulue

# Interpolating Humor - Can Lines be Funny?

**By:** Oscar De Leon, Kevin Ulliac & Isaac McCracken

We set out to create an Artificial Intelligence (AI) agent that can play the game Apples to Apples and to optimize the agent's ability to win games by appealing to individual player preferences. We chose to use the publicly available Word2Vec word embeddings from the Google News dataset. After calculating the vector combinations from green and red word pairings we performed Linear Regression (LR) on the vector features directly to interpolate the judge's preferences. Thus we are approximating the judge's preference for green and red card pairings by modelling it as a linear function using LR. Our findings show that all our agent models can learn the preferences of other agents to maximize round wins which ultimately maximizes game wins. This contrasts with their random agent counterparts all of which have no ability to learn due to the random selection of words. We devised 22 variations of game setting combinations evaluated them on a set of 100 games each and tested the results for statistical significance. Our

results show a very high win rate across the board for all AI agents with high statistical significance.

**Faculty Mentor:** Dr. Calin Anton

# Mentor Match: A Tutoring App Demonstration

**By:** Michael Dinelle, A.J. Neufeld, Sydney Thiessen, Masha Antoshkina & Shanil Kumar

Are you a student who needs help with studying? Are you a tutor looking to connect with students? We have a solution for you.

MentorMatch is designed to provide an engaging and interactive experience for students seeking qualified tutors. The platform enables students to create an account and undergo a selection process where they can specify their preferred subjects learning styles (e.g. kinesthetic visual auditory) and any challenges they face such as learning disabilities (e.g. autism ADHD). This allows tutors to tailor their teaching methods to better suit each student's needs.

To enhance trust and improve user experience MentorMatch incorporates a two-way feedback system allowing both students and tutors to rate and review their mentoring sessions. This helps future users make informed decisions when selecting tutors or students.

**Faculty Mentor:** Dr. Mahmoud Elsaadany

# Real-time Sign Language Recognition and Translation: A Mathematical Approach

**By:** McKenzy Ison, Justin Thai, Karley Yachimec & Daniel Platt

Abstract—Abstract–A significant part of society is deaf or deals with a form of hearing impairment. These individuals use various sign languages to communicate with American Sign Language (ASL) being very common and the focus of this research. Past studies have shown great success using an image-based approach to create a simple translation tool for sign language that recognizes signs and outputs the corresponding text. These are the basis of our strategy which uses a different view. Rather than using images for data we use angle calculations derived from MediaPipe's

hand-tracking capabilities. Storing mathematical data allows for significantly decreased memory storage as opposed to images. Using OpenCV MediaPipe and Tensorflow on Python our model achieved a final training accuracy of 90% and a final validation accuracy of 93%. Numerical results show that a mathematical approach to this problem is comparable to other image-based methods.

Index Terms—Machine learning ASL translation MediaPipe

**Faculty Mentor:** Dr. Mohammed Elmorsy

# Investigating Virtual Simulation of an Optic Lab in Physics Education Using Virtual Reality

**By:** Haris Kajtazovic

As virtual reality (VR) technology improves the impact VR has on other areas such as education also improves. Educational VR applications provide support to students with an immersive environment in which such an environment may not be available. This research investigates the effectiveness and implications of a student-developed virtual reality application. The educational virtual reality application investigated in this research explores the physics topic of optics as it demonstrates the law of reflection and refraction in an immersive and engaging environment. Important ideas such as learning theories accessibility and ways the application reduces cognitive load are considered. An experiment with student participants was conducted to gather information about the virtual reality application. The experiment involved the participants completing the activities presented in the educational virtual reality application followed by a post-experiment survey. From the experiment topics such as accessibility usability and effectiveness of the educational virtual reality application are discussed. The results gathered from the experiment limitations faced and future research directions discussed offer insight for researchers and instructors interested in exploring virtual reality as an educational tool.

**Faculty Mentor:** Dr. Sam Qorbani

# mm-Wave Wearable Edge Computing Module hosted by PRGW Structures: A Physical layer study

**By:** Matthew Kostawich

Abstract—6G communication systems represent the nominal future extension for the current wireless technology where its impact is extended to touch upon all human activities including medical security and entertainment applications. As a result human needs are allocated among the highest priority aspects of the system design and requirements. 6G communications is expected to replace all the current video conferencing with interactive virtual reality meetings involving high data-rate transmission merged with massive distributed computing resources. In addition the current expansion of IoT applications must be mitigated with significant network changes to provide a reasonable Quality of Service (QoS). This directly implies a

high demand for Human-Computer Interaction (HCI) through mobile computing modules in future wireless communication systems. This article proposes the utilization of Printed Ridge Gap Waveguide(PRGW) to host the wearable nodes. To the best of our knowledgewe propose for the first time a physical layer analysis within the context of a complete architecture. A thorough study is provided on the impact of the distortion of the guiding structure on the overall system performance. The proposed structure shows small latency and small losses highlighting it compatibility with future applications.

**Faculty Mentors:** Dr. Mohammed Elmorsy, Dr. Mohamed Sayed Sifat, Dr. Shokry Shamseldin, & Dr. Mahmoud Elsaadany

# Charging Optimization in Multi-App Wireless Sensor Networks through Reinforcement Learning

**By:** Benji Lawrence & Neal Hamacher

Wireless sensor networks are becoming increasingly prevalent in modern systems. These networks can be outfitted with a mobile charger that travels the network and replenishes the energy of the nodes within. This paper introduces a novel resource management problem for controlling mobile chargers in rechargeable wireless sensor networks shared among multiple applications. A reinforcement learning approach is developed to optimize the charger's actions increasing the network's lifetime while ensuring that each application's throughput and coverage requirements are met to the

best of the charger's ability. The resultant algorithm optimizes mobile charger network traversal and energy usage to maximize the network's lifespan while meeting application Quality of Service (QoS) requirements. It can also adjust the mobile charger behaviour when some applications are assigned higher priority than others ensuring critical network operations are maintained more effectively. Numerical results show that the proposed approach ensures minimum QoS requirements are met through network node energy level maintenance and prolonged network up-time.

**Faculty Mentor:** Dr. Mohammed Elmorsy

# Preliminary results on using clustering of functional data to identify patients with Alzheimer's Disease by analyzing brain MRI scans.

**By:** Richard Lui

This study delves into the effectiveness of funWeightClust a sophisticated model-based clustering technique that leverages functional linear regression models to pinpoint patients diagnosed with Alzheimer's Disease. Our research entailed a thorough analysis of voxelwise fractional anisotropy data derived from the Alzheimer's Disease Neuroimaging Initiative (ADNI) dataset with a particular emphasis on the Cingulum and Corpus Callosum which are critical regions of interest in understanding the disease's impact on brain structure. Through a series of experiments we established that funWeightClust is efficient at distinguishing between patients with Alzheimer's Disease and healthy control subjects. Notably the clustering model yielded even more pronounced and accurate results when we focused our analysis on specific brain regions such as the Left Hippocampus and the Splenium. We postulate that integrating additional biomarkers could significantly enhance the accuracy and reliability of funWeightClust in identifying patients who exhibit signs of Alzheimer's Disease.

**Faculty Mentors:** Dr. Cristina Anton & Dr. Calin Anton

# Drone-Based Automated Agricultural Sampling

**By:** Arfaa Mumtaz & Allan Lam

This drone-based agricultural sampling project builds on the innovative research of Dr. Samuel Mugo, integrating his lightweight nutrient indicator to enable efficient, field-based testing. This pioneering project investigates the feasibility of implementing autonomous soil sampling via drones to provide farmers with detailed soil analysis and tailored recommendations, all accessible directly from their phones.

The application will allow farmers to efficiently distribute fertilizer or use any other applicable recommendations generated by the application's AI model to ensure there are no low-nutrient areas and no areas that are being over-fertilized, thus affecting the surrounding environment.

The system utilizes a robotic arm to collect soil and deposit it into a reservoir, which is mixed with water and reactants to extract the target chemical. The resulting solution is filtered and analyzed using an onboard camera and then compared with a regression model to identify the abundance of essential nutrients.

Our presentation highlights the significance of this work within the broader scientific context, detailing the design process, the engineered solutions we developed, and the creative approaches we iteratively implemented. Another component covered is the future development proposals for the project, which include enhancements to the sample retrieval mechanism, along with the integration of AI to aid the drone's navigation by using principles of environment mapping and robust obstacle detection and avoidance algorithms.

**Faculty Mentors:** Dr. Mohammed Elmorsy & Dr. Samuel Mugo

# Confidence Recognition: A Deep Learning Approach with the Mozilla Common Voice Dataset

**By:** Tanveer Singh

This research presents an approach to automatically recognize confidence in human speech using Artificial Intelligence. Benefitting from the naturally occurring speech patterns in the Mozilla Common Voice dataset a diverse dataset was created by manually labeling audio files based on the confidence level determined by following a particular set of guidelines. The novelty of this research lies in the naturalness of the speech since speakers were not consciously modulating their tone. The dataset is also very diverse as it contains speakers from all around the world. The data was then processed and an AI model was trained on it. Significant real-world applications are

possible through this ranging from educational tools to help students develop speaking skills to assessing a candidate's confidence during job interviews.

**Faculty Mentor:** Dr. Chinenye Ndulue

## Learning Geometric Shapes using a Deep Variable Autoencoder

**By:** Brendan Ure & Benjamin Kwon

This research explores the use of a Variational Autoencoder (VAE) to learn geometric shapes from 3D mesh data. To make the model easy to interpret we isolate dimensions of variability that are human interpretable - like for example the position or size of the shape. Our approach leverages a deep graph convolutional network to process 3D meshes represented as graphs. The encoder learns a latent space representation by capturing both spatial and topological information while the decoder reconstructs vertex positions from the latent space. The training pipeline is designed using PyTorch Geometric and Trimesh enabling efficient graph-based processing of 3D models stored in PLY format. We evaluate the model by training on simple geometric shapes such as a torus and demonstrate its ability to generate high-fidelity reconstructions with minimal loss. Our results suggest that a VAE can effectively encode and reconstruct 3D shapes while preserving structural integrity.

**Faculty Mentor:** Dr. Dana Cobzas

## EEG Analysis for Decoding Brain Activity During Music Listening

**By:** Ryan Vieira

This project focuses on understanding brain functionality when listening to music. Music is a complex auditory stimulus that engages multiple brain regions making it a powerful tool for studying brain connectivity and perception. EEG with its high temporal resolution allows researchers to capture real-time brain activity changes in response to rhythm melody harmony and emotional content. Data from 30 healthy subjects listening to familiar music pieces has been collected by Dr. C. Hassall from the Department of Psychology. Subjects were asked if the piece was familiar to them. At the current stage

of this research the main focus is processing the raw EEG data in such a way that it will be easy to include in future models using generalized scripts that can be reused with other EEG datasets. Next we will explore traditional and machine learning methods to find relevant brain activity related to music listening.

**Faculty Mentor:** Dr. Dana Cobzas

## Decision Sciences

# Atmospheric Interference: Weather Impact on Admission at Telus World of Science

**By:** Miranda Holba & Megha Sunny

TELUS World of Science of Edmonton inquired about how they could improve attendance predictions to allow for more precise staffing plans and improved management of the overall guest experience. The primary goal of the analysis was to inquire if weather conditions had a role in admission rate predictions and which weather factors have the most substantial influence on predictions. Particularly TELUS World of Science asked about the definitions of "pleasant" and "extreme" weather and their role in admission rates. Our team theorized that the impacts of weather may be seasonal. Definitions of "pleasant" and "extreme" weather depend on the season and differing weather factors most commonly occurring during those periods.

**Faculty Mentor:** Dr. Arka Mukherjee

# Hazing Through the Lens of Social Bonding Theory: How Legal and Regulatory Frameworks Shape Perceptions of Hazing in India

**By:** Isabel Reay & Michael Williams

The presentation is an analysis of a study done on ragging (hazing) in universities in India. Myself and Michael have completed extensive data analysis on the study to relate ragging and the legal framework have influenced the understanding of ragging for university students in India. We will present our methodology and findings from the

analysis of this study and discuss how the study may be completed at different universities in Canada and Sri Lanka in the future.

**Faculty Mentors:** Dr. Bruce Thomson & Cody Esih

# Bent River Album Cover Design Challenge

**By:** Raquel Callele

This project was a milestone as it was my first time designing for a client. We were tasked with creating album covers for new releases with Mike Rud's album for Bent River Record being my focus. Each Typography class was assigned a different artist and this month-and-a-half-long project brought a mix of pressure stress and self-doubt similar to the final project in Design Studio 1 which had been marked as one of the most overwhelming and time-consuming projects - until this one.

The design really began to come together when I let go of my self-doubt and allowed myself to enjoy the creative process. I designed the cover for The Paranormal Adventures of Uncle Mike an album that conveys mystery curiosity and ambiguity. To reflect these themes I incorporated a graphical element of sea monster scales and shaky typography. The textured scales were inspired by the album's opening track "The Lonely Sea Monster of Pigeon Lake Alberta" which explores isolation. This theme shaped my commitment to crafting a design that encapsulated the album's essence.

Influences such as Frankenstein Penny Dreadful comics and Andy Warhol's retro eerie style helped guide my design choices. The contrast between the textured scales and jittery typography creates a strong visual impact and the close-up imagery adds an element of mystery inviting viewers to explore the album's deeper themes.

**Faculty Mentor:** Alex Keays

# Close to Home: Connecting the feelings and emotions between music and art

**By:** Katie Clarke

This project was such a joy to work on. I loved listening to and exploring ways to visually interpret the music. Each piece has its own unique atmosphere and I wanted the album cover to do it justice. This cover is the visual interpretation of your soundscapes that connects the listener before they hear a note.

For the cover to feel personal I started by thinking about a connection we all share. Immediately I thought of the night sky to push the idea further and make it more abstract the concept of star trails came into play. Each trail is individual but when you look at the bigger picture they create a unified image similar to how each musician is powerful on their own but together they make an orchestra.

The sunrise symbolizes a new beginning and new horizons representing the new direction of innovative ideas and soundscapes. Similarly the silhouette of the Canadian Rockies specifically drawn from Alberta's perspective is included to act as a grounding element.

The title I wanted to act as a bridge between the elements visually and conceptually. The title should be an extension of the imagery unifying the two to show that they are all interconnected. The flourishes of the typographyreflect how the music and the imagery come together creating a feeling of harmony and balance.

The cover is a reflection of everything your music represents—connection unity and innovation. Each visual element works together to create a cohesive story that mirrors your journey.

**Faculty Mentor:** Constanza Pacher

# Amber Kivinen Memorial: MacEwan Book of the Year

**By:** Taylor Davies

This assignment aimed to create a product based on the character Amber Kivinen from the book "Girlfriend On Mars" by Deborah Willis. When put into the perspective of an avid MarsNow audience member they never truly got to know Amber for who she is which inspired the Amber Kivinen Memorial magazine. The title is in an elegant round font that fits the professional side of her personality. Her last name hides within her first name to represent Amber's hardships and complicated relationships with her family. Amber's facial features are blurred to allow the readers to focus on the text rather than how she looks.

The first section "Wanting" is a passage that gives readers a small insight into who she was. Then "Before MarsNow" takes direction from her complicated childhood and adulthood. "Competing for the Impossible" is about Amber during the competition to Mars highlighting her thoughts off camera. The astronaut on the separate page of people foreshadows the longing for home at the end of her life. Concluding the magazine "The Godly Act" discusses Amber's final days.

Initially the black-and-white imagery represents the reader's unfamiliarity with who she is. Then as the text progresses more vermilion takes on the page and an elegant serif font appears signifying the readers' understanding of Amber and representing her bold personality. In full colour the back cover illustrates the reader's understanding of who Amber was and will be in their hearts. She is in her prime heald accomplishing what makes her feel powerful.

**Faculty Mentor:** Constanza Pacher

## Honouring Amber Kivinen Candle Series: MacEwan Book of the Year Packaging Design

**By:** Ella Jane Eresmas

The Honouring Amber Kivinen Candle Series is inspired by MacEwan's Book of the Year, Girlfriend on Mars by Deborah Willis. This packaging design is a commentary on the disconnect between large corporations and the social and environmental issues they actively contribute to. The design exhibits one of the book's key themes: corporate greed. In the book, MarsNow, a multi-billion dollar enterprise, insensitively capitalizes on the death of one of the characters. The design is carefully constructed to reference details mentioned throughout the book, influencing the colours, layout, content, typography, and imagery.

**Faculty Mentor:** Constanza Pacher

## Putting Us Together

**By:** Lisa Kotelniski, Erin Hutchison & Kevin Thomas

Renowned acting teacher Stella Adler once said "Growth as an artist and human being are synonymous." Inspired by this quote our research team has created a short

documentary film that explores the intersection between artistic and personal growth. Through various interviews the documentary will explore the unique experiences of emerging artists as they develop their artistic voices and personal identities. We hope our film will stand as a testament to the profound ways our artistic and personal journeys intertwine creating a deeper understanding of who we are and who we can become.

**Faculty Mentor:** Leigh Rivenbark

# Designing for Dementia: De Hogeweyk's Approach to Human-Centered Care

**By:** Victoria Lockridge & Joel Sims

"What if your parents got Alzheimer's?"

This was the question that Hogeweyk founders Yvonne van Amerongen Jannette Spiering and Ely van Hal were faced with in 1992 while working in management at a traditional Alzheimer's care home. Would they feel comfortable placing their parents in the care system as it currently exists?

Located in the Netherlands The Hogeweyk is a "village" created for dementia patients and seniors to deinstitutionalize nursing home care by implementing a human-centered approach to end-of-life care. They establish this approach from the ground up in a neighbourhood-like environment through architecture continuous care community familiarity and focusing on the "possibilities not disabilities."

De Hogeweyk challenges us to deinstitutionalize our preconceived notions of conventional practices within home care by emphasizing the importance of implementing and designing systems to create 'normalcy' by first addressing the needs of people receiving care as opposed to designing systems based around assumptions of practitioner and patient needs.

Our research into Hogeweyk's accessible care structures expands our understanding of human-centered user-centric design by analyzing conventions of Alzheimer's care. This research includes establishing a foundational understanding of Alzheimer's disease a comprehensive analysis of the design of the Hogeweyk and an interview with Hogeweyk founder Ely Van Hal.

**Faculty Mentor:** Clayton Lowe

# Album Design as an Immersive Invitation & Visual Companion

**By:** Stacy Ma

The design is not just a visual companion to the album's music — it's an invitation to immerse yourself in the soulful narrative and rhythm of the music. The centerpiece of the design is its warm textured aesthetic dominated by deep reds and purples with a touch of soft golden waves that flow seamlessly across the album cover. Rich shades pink and purple are used to convey warmth and passion – emotions often associated with the heart. The yellow represents the dynamic elements experienced in life which add a spark of joy and excitement to the composition. The abstract wave-like patterns symbolize the ebb and flow of musical improvisation—a core essence of jazz that is unpredictable yet harmonious. The dynamic yet calm movement in the visuals reflect the album's title Heart's Pace suggesting the natural rhythms of life and music. Lastly this design respects the legacy of jazz while modernizing its visual language. The visuals position the album as contemporary relevant and accessible to both seasoned jazz enthusiasts and newer audiences. The design could be seen as meditative introspective and full of nuanced emotions – qualities that align with taking one's time and fully embracing the present. It encapsulates both the reflective nature of life and the spirit of jazz. In short this design captures the heart of the album—its pace passion and purpose—while inviting listeners into a world where sound and visuals blend effortlessly. It's not just a package for the music; it's a part of the story itself.

**Faculty Mentor:** Constanza Pacher

# MarsLife:NOW

**By:** Stacy Ma

"Mars Life: Now Legacy Package" is a baby box commemorating humanity's first birth on Mars. Unlike typical baby gifts the design feels distant goal-oriented and corporate with a cold pinkish-red and white palette that prioritizes branding over warmth. Amber the mother is greeted with the message: "One small baby for Mars one great achievement for mankind" framing her child as a milestone rather than a person. Inside Amber finds a letter from Geoff Task three symbolic "career" items and an infographic.

The letter adopts a formal corporate tone emphasizing her role as a "contributor" to the Mars project rather than celebrating her as a mother. Its professional layout generic signature and lack of personalization highlight the company's interests over empathy amplifying Amber's isolation and grief over the baby's fate. The infographic titled "Mars Life: Now" outlines project milestones for Amber's child reducing them to an experiment rather than an individual. Dense with timelines career paths and population plans it imposes obligation rather than support. The included items—a wrench magnifying glass and pen—symbolize career options dictated by the company with deviations requiring approval reinforcing corporate control. Logos like MarsNowTM dominate the package stripping it of humanity. Even the wellness guide and QR codes feel bureaucratic. Overall the design lacks affection joy or personalization focusing on productivity and long-term planning over celebrating motherhood or the child's individuality.

**Faculty Mentor:** Constanza Pacher

# Typographic Expression of "The Wind" by Ray Bradbury

**By:** Stacy Ma

The spread is a visual and typographic interpretation of Ray Bradbury's short story The Wind capturing its eerie atmospheric tone and themes of suspense and fear. The design leverages both form and content to reflect the story's central motif: a supernatural wind that becomes an ominous and persistent presence that constantly haunts Herb Thompson's friend Allin. The left side reflects the protagonist's false security against the wind force while the dissolving text on the right represents his descent into realization as the supernatural elements close in. The use of negative space on the right page heightens the story's atmosphere of emptiness and eeriness. To further emphasize the fleeting nature of wind wisps of text mimics the whispering wind. Large bolded phrases like "A breeze blew into his face." and "Fading fading fading" act as anchors reinforcing the psychological tension of the story and symbolizing the unpredictable and inescapable nature of the wind. Its pacing imitates the slow creeping dread in the story as the reader – much like the characters – is drawn into an unsettling confrontation with the unknown. The pattern on smoke leaves a visual impression of wind currents. Furthermore it creates a smooth entry point for the readers at the beginning of the text and transitions away with the "Fading fading fading" text. By simulating the ghostly unpredictable movements of wind the design immerses the reader in the protagonist's perspective enhancing their experience of the story's core tension and unease.

# Album Cover Design for Edmonton Winds

**By:** Harry Moores

Close to Home is a soundscape and big band album that focuses on as the name implies returning home. The very creation and conceptualization of the music holds great significance in the theming of the album. The Edmonton Winds returning to the place in which it started the referencing to places and structures long past and still standing and the melding of improvisational music with the refined and unified structure of a big band the Close to Home album is a beautiful amalgamation of people's life experiences and talents. The album's design embodies the raw form of this concept. The undeniable characteristics that differentiate people and places and the melding of those individuals and their experiences create a greater whole unified experience.

# MarsNow Surprise: A Product Design for the 2024 MacEwan Book of the Year

**By:** Perl Perez

Branded as MarsNow Surprise this product blends indulgence and a fun game into one dubbed as the sweetest way to escape Earth forever! This extraordinary chocolate ball uses space-grade cocoa sourced from Mars by the Marsonauts. It gives people of any age with dreams of going to Mars a chance to make it into a possible reality by collecting all figurines and join the MarsNow reality TV show.

# Adopting Wellness Classes In Edmonton Leisure Centres

**By:** Michelle Philip, Marwa Ali & Leo Cronin-Barrow

Our project aims to provide a community-driven initiative that focuses on building sustainable healthy habits. We will bring together fitness nutrition and cultural education. Our main goals are to promote health literacy share diverse practices about wellness and build community connections. This research is the second phase of a semester-long partnership with the city to design user-centred solutions and improve experiences at their leisure facilities.

**Faculty Mentor:** Dr. Isabelle Sperano

# Interfacing: An Exploration of Transgender Fashion Gender Affirmation and Passing

**By:** Max Quilliam

Interfacing is an in-progress body of artwork that uses clothing structure pattern and print as a place to critically engage with the relationship between clothing gender affirmation and "passing" (being read as the gender one identifies as) in the past and present.

This body of work draws on research I conducted at the Transgender Archives at the University of Victoria during the summer of 2024 where I reviewed a combination of intra-community transgender* magazines and personal photographs (c. 1970's-1990's). At the Archives I sought out a combination of photos - both editorial and personal - of transgender* people and written articles detailing how one can craft a gender-affirming and/or "passing" outfit. Through this search I have identified different gender-affirming clothing design features by repetition in the archival materials. The identified features - such as the use of layered garments to obscure the body's shape or the use of exaggerated proportions (e.g. shoulder padding) to minimize the waist - are being used to inform a collection of visual artworks.

This presentation will share my takeaways from the Transgender Archives as well as my process and current visual experimentation based on those findings.

*Transgender is being used as an umbrella term; many of the resources reviewed in this project use the term "transsexual" with many overlapping with the "transvestite" and "crossdresser" communities.

**Faculty Mentor:** Dr. Robin McDonald

# Book of the Year Exploration: Storytelling through Player Interactions

**By:** Kayla Sauth

The creative interpretation of Deborah Willis's Book of the Year Girlfriend on Mars through the media of an interactive board game. It is a humourous book with a dark twist that delves into the intricacies of human connections amidst the dark expanses of space.

The book's lighthearted impression is shown through the innocence of a fun game with silly plastic figurines and cartoon visuals. But like the book as you dive deeper and start to read the in-between text its subtle storytelling through the design's actual content changes the tone of a darker one. The game comments on the messy never-ending search for oneself even within a harsh capitalistic and individualistic world and how that unique journey intertwines with the people around us; for better or for worse players will quickly learn that each action they take will have consequences for the surrounding players. It's only a matter of time before patience runs thin and players become defensive about how unfair the system works reminding us of the inequalities and corruption faced in the reality of the book. It is a perpetual game of push and pull with "Everything to lose and nothing to gain."

**Faculty Mentor:** Constanza Pacher

# Postcards to Mars: Experimental Typography Inspired by MacEwan's Book of the Year

**By:** Rory Stahlke

This set of postcards inspired by Girlfriend on Mars uses experimental typography to visualize three quotes from the novel. Each quote represents an aspect of duality that follows the same bait-and-switch technique used in the story. Two quotes are from Kevin's perspective representing his loose grasp on the reality of the situation while the other is from Amber when her new reality sets in. A postcard is often meant to be something positive—a photo or artwork attached to a sentiment but in this case the messages are dark and the postcards will never reach their destination: you can't send a postcard to or from Mars.

**Faculty Mentor:** Constanza Pacher

# Paranoia: An Anthology of Horror

**By:** Rory Stahlke & Taylor Davies

Paranoia is a collective publication project of DESN231 Typography II a course in the Bachelor of Design. Each student was assigned a short story to design a spread in the publication showing conventional and unconventional ways to present text on a page. Linguistic deconstruction non-traditional grids and experimental layout devices were used to enrich the reading of a classic horror story.

**Faculty Mentor:** Constanza Pacher

# Adam & Amber: The Creation of Eden

**By:** Amanda Stashko

Deborah Willis' novel Girlfriend on Mars is a satirical exploration of current issues society faces shown using relationships and a reality TV competition. The inspiration for the main idea was the story of Adam and Eve set on Mars using the characters of the novel. This retelling was shown in the form of a children's book.

Many biblical references and shortened quotes from the novel were used. The biblical references are mainly used in the first few pages. For example " 'Let there be marstronauts!' and there was" is related to God creating Earth and saying "Let there be light and there was." The shortened quotes from the novel are used later throughout the rest story. For example "It also lets them study how low gravity affects a baby's growth and development" is paraphrased from Adams explanation of Amber being pregnant. Using these reinforces the connection to both stories.

The colour scheme used is more saturated and is mainly a teal reds and oranges. By using bright colours this appeals to children as children's books are typically full of vibrant colours as it draws them into the story making it more intriguing. Teal red and orange are used as they are complimentary colours and create an appealing visual contrast.

The typefaces used are Moby and Lato. Moby is a display font that plays into the futuristic theme as well as being playful for children. Lato is a typeface that has high readability and is typically used in children's books.

# Close to Home: An Interpretation of the Edmonton Winds Music

**By:** Amanda Stashko

The album Close to Home by the Edmonton Winds has unique theming throughout the songs. There are songs about the natural inspired from classic literature and with sombre or upbeat tempos. The variations and uniqueness of each song had great influence of the final design.

Following the interview with the conductor much more insight of what went into the making of this album was gained. The two key ideas that are represented are the sense of community and the concept of "soundscape." Community is represented on the album cover through the two hands reaching towards each other. These two hands represent the people that worked on making this album come to life and how collaboration can create a beautiful piece of art. The idea of soundscape evoked the image of sound waves and how they can appear to look like an abstracted landscape. To capture this idea an abstracted sound wave incorporated through many pieces on the record design. These elements reflect the music made and the experience of making the Close to Home album.

For the colour scheme cobalt blue and burnt orange were used. Cobalt blue is associated with nature through water and the sky connecting to the natural theme in some songs and connotatively represents sadness capturing the mood of other songs. Burnt orange is often associated with warmth and togetherness emphasizing the factor of community as well as having a feeling of enthusiasm tying into the songs with a more upbeat tempo.

**Faculty Mentor:** Constanza Pacher

# Liminalities: Anthology of Horror

**By:** Amanda Stashko, Ryo Cifra, Katie Clarke, Tiana Ernscliff, Joshua Horn, Tarik Koehn, Brad Kwasnycia, Harry Moores, Alexandra Moule, Athena Scott, Harley Shymanski, Justin Van Teeling, Lynn Vu, Troy Wegner & Evan Wilson

Liminalities: Anthology of Horror is a collaborative book created by students in DESN231 Typography II Bachelor of Design. With the overall goal of enhancing the reading of the text through visual devices each student was asked to design an assigned short story in two ways: conventional and unconventional. Exploring linguistic deconstruction and experimenting with non-traditional grids was encouraged all while maintaining the legibility and readability of the text. After the project was completed a volunteer student (Brad Kwasnycia) designed the covers dust jacket and front and back matter to package the book which was professionally printed in the Spring of 2025. Faculty supervisor: Constanza Pacher.

**Faculty Mentor:** Constanza Pacher

# Macewan's School of Business - Visual Identity Concept

**By:** Forrester Toews & Kate Young

We started this project as an in-class assignment for DESN316 Branded Environments; after further review with our professor Clayton Lowe we expanded on audience research and recognized its relevance for the school's research initiatives.

For this project we were tasked with reimagining an existing building or one currently in development exploring new ways to enhance its design and functionality. We chose to redesign MacEwan University's upcoming business building and reimagine its logo to reflect the institution's evolving identity and its students.

The new logo transitions from a bar graph to a three-tiered design inspired by the architectural elements of the building—symbolizing progress growth and the steps toward success. This approach aligns with MacEwan's tradition of incorporating structural forms in its branding much like the existing three-pillar logo. The brown and blue colour palette was selected to represent professionalism and reliability much like the classic combination of a blue suit and brown shoes—timeless respected and sophisticated.

Beyond the visual identity we took our newly designed logo and applied it to fabric patterns used in furniture upholstery reinforcing the brand through interior elements. Additionally we implemented the new branding into updated signage seamlessly integrating the refreshed identity into the physical space. This project humanizes

MacEwan's business brand bridging architecture design and user experience to create a cohesive and future-forward learning environment.

**Faculty Mentor:** Clayton Lowe

# The Little Prince Book Redesign

**By:** Ayse Yesil

My design for The Little Prince embraces the book's whimsical yet profound nature appealing to young adults and tweens. While the novella is written in simple language its themes of love loss and self-discovery hold deep meaning. I sought to reflect this balance by creating a visual style that is playful yet refined—capturing the story's wonder without feeling overly childish.

The rose central to the Little Prince's journey symbolizes both home and heart. To emphasize her significance I made the rose a dominant feature of the planet visually representing his attachment to her even when he is far away. Similarly the fox's lesson on love and connection deeply resonated with me. To illustrate his bond with the Little Prince I depicted the fox gazing at the stars mirroring the way he remembers his friend.

For the book's interior I prioritized clarity and elegance. I used a highly legible typeface condensed the layout to fit within 60 pages and incorporated Roman numeral chapter numbers maintaining a clean structured design. Drop caps further distinguish chapter beginnings adding a subtle yet thoughtful touch.

Through this redesign I aimed to honour The Little Prince's timeless themes while presenting them in a visually engaging and sophisticated way.

**Faculty Mentor:** Constanza Pacher

## English

# Ecogothic Environments and the Queer Colonial Other in Bram Stoker's Dracula

**By:** Jessica Altheim

In "EcoGothic Environment and the Queer Colonial Other in Bram Stoker's Dracula" I conduct a close textual reading of key points in Stoker's novel. I apply the disciplines of the EcoGothic and Queer Theory to explore how Dracula embodies the Colonial Other and represents Victorian anxieties concerning sudden advancements in technology and modes of thinking.

**Faculty Mentors:** Dr. Daniel Martin & Dr. Svitlana Krys

# Honours Presentation

**By:** Ashley Alton

For this honours thesis I will present on Baba Yaga's metamorphosis from witch hag to feminist icon throughout folklore and children's literature. I will present three main primary texts that focus on Yaga's ability to shapeshift from child-eater to wise woman where she aids the protagonists on their quest for freedom transformation and vengeance.

**Faculty Mentor:** Dr. Mike Perschon

# The Moose and the Mountain: The Ethics of Consumption and Extraction in The Marrow Thieves and Escape to Gold Mountain

**By:** Christian Lambert

Cherie Dimaline and David H.T. Wong both explore themes of hunger consumption and extraction in their texts. While Escape to Gold Mountain: A Graphic History of the Chinese in North America (hereafter Gold Mountain) explores these themes going from the past to the present The Marrow Thieves looks to the near future. In Gold Mountain the characters face an unenviable choice: work hard to make enough money to (hopefully) feed their family or not work and likely starve. In The Marrow Thieves Frenchie faces a similar situation in his encounter with the moose. Both texts posit that choices are anything but simple when faced with hunger. This essay draws on scholars such as Michi Saagiig Nishnaabeg writer and activist Leanne Betasamosake Simpson Cherokee scholar Daniel Heath Justice and Stó:lō knowledge-keeper Lee Maracle among others to analyze these narratives representations of consumption. On this point

both text's themes of resource extraction raise an important questions: How do the consumption and extraction of resources such as food minerals and space affect Indigenous and Diasporic communities in Canada and what do each of these texts assert about responsibility kinship and empathy? In The Marrow Thieves Cherie Dimaline demonstrates through the moose scene that our responsibility is more than human-to-human and any detrimental action towards our relations including non-human or excessive consumption is unethical. The lesson of the moose can be applied to many texts across Canadian and Diasporic literature including Escape to Gold Mountain.

**Faculty Mentor:** Dr. L. Camille van der Marel

# Impossible Children: Post-Oedipal Subjectivity in Villeneuve's Blade Runner 2049 and Ducournau's Titane

**By:** Evan Meeks

This paper looks at recent representations of posthumanism in film to uncover new modes of identity and subjectivity for the posthuman subject. Blade Runner 2049 (Denis Villeneuve 2017) and Titane (Julia Ducournau 2021) subvert traditional postmodern representations of the posthuman by offering a model for posthuman subjectivity that allows for the reintegration of a reproductive family unit. This concept is exposed in these films through a reinterpretation and appropriation of the Oedipal myth by the posthuman subject to first expose their lack of genealogy and then assert a new reproductive family that is represented as paradoxically fictitious and authentic. While continuing to undo the dialectical tension between species and ontological types these new posthumans nevertheless assert sincere and (re)productive familial boundaries. I explore this promise of post-Oedipal subjectivity through various critical lenses including Donna Haraway's figure of the cyborg and Derrida's deconstruction of family. The framework of subjectivity offered in these films thus marks a radical turn in filmic representations of the posthuman—marking a shift away from the tired anxieties aroused by more typical and generic depictions depictions that typically work (solely) to demonstrate the impossibility of a stable and coherent human subject.

**Faculty Mentor:** Dr. Josh Toth

# "It's Not That Deep": Feminist Killjoy Epistemologies in Intersectional Digital Fandom Discourse.

**By:** Beth Murray

Digital fandoms of young adult fictions—often dismissed as frivolous—serve as transformative spaces where intersectional feminist critique confronts systemic inequities yet faces compounded marginalization through gendered cultural hierarchies and intrafandom backlash. Analyzing discourse surrounding Twilight, The Hunger Games, and A Court of Thorns and Roses (ACOTAR) reveals how digital platforms enable marginalized fans to challenge colonial, racial, and class-based oppression within texts. Indigenous critiques of Twilight's appropriation of Quileute traditions, Black reinterpretations of The Hunger Games District 11 as an allegory for anti-Black violence, and confrontations with ACOTAR's racial ambiguity demonstrate how fans expand literary analysis beyond authorial intent. However, these intersectional critiques are doubly devalued: externally by patriarchal taste hierarchies that frame feminized genres as "unserious," and internally by "intrafandom anti-fans" who weaponize nostalgia to dismiss critical engagement as "not that deep." When fellow fans deride analytical fans as "condescending," replicating Sara Ahmed's "feminist killjoy" dynamic by framing intersectionality as disruptive to fandom's presumed apolitical enjoyment, such anti-fan rhetoric reflects algorithmic amplification of conflict on digital platforms where whiteness operates as an unmarked norm. These clashes expose the limitations of single-axis frameworks in fan studies, which often prioritize gender over intersecting oppressions. By centring Kimberlé Crenshaw's intersectionality and Pierre Bourdieu's cultural capital, this work argues that fan studies and fandom discourse require methodological shifts toward collaborative, anti-oppressive scholarship. Digital fandom spaces emerge as contested sites where marginalized voices redefine literary legitimacy through participatory critique, challenging systemic erasure in both cultural and academic spheres.

**Faculty Mentor:** Dr. Kathryn Holland

# Observing The Relationship Between Emily and Nature in Ann Radcliffe's The Mysteries of Udolpho

**By:** Erica Myles

The Mysteries of Udolpho is a Romantic Gothic novel by Ann Radcliffe that is misunderstood. While the title castle plays a prominent role in the character growth it the character Emily I argue that her interaction with nature is her biggest influence to escaping that castle and returning home.

**Faculty Mentor:** Dr. Dave Buchanan

# Resident Evil: Films Versus Video Games the Shift in Narrative and Genre Towards Personal Affect

**By:** Rae Richardson

This honour thesis looks into film and video game narratives through adaptation theory specifically in the Resident Evil video games and film series'. By looking at the changes in these medium formats I intend to determine via affect theory and an accompanied case study how effective are these narratives as well as how well the horror genre is presented to convey player/viewer interest.

**Faculty Mentor:** Dr. Mike Perschon

## Gender Studies

# Immigration Religion and Integration into the Canadian Workplace

**By:** Kinza Ahsan

In 2021 Canada welcomed over 406000 new permanent residents marking the highest number of new arrivals in a single year in its history (Immigration Refugees and Citizenship Canada 2022). The Canadian government has embraced immigration as a tool to build and strengthen the Canadian economy for now and the future (Immigration Canada 2023). According to recent census data nearly 23% of Canada's population is

foreign-born with substantial communities from South Asia the Middle East and Africa. A significant portion of these immigrants practice Islam Sikhism Hinduism and other non-Christian religions. This increase in religious diversity brings both opportunities and challenges for Canadian society particularly in the workplace. However tensions often arise at the intersection of religion immigration and work particularly when religious practices conflict with workplace norms and policies. This research project seeks to answer the impact of religion on the working lives of immigrants as they endeavour to integrate into the Canadian workplace. It is hoped by undertaking this project we can illuminate the issue and help to guide HR policies to help integrate them into the workplace.

**Faculty Mentor:** Dr. Bruce Thomson

# Gender Construction in the Horizon Series: Zero Dawn and Forbidden West

**By:** Katelyn Tanner

The construction of gender in video games while not new has become more of a focal point in the interests of anthropologists. Video game companies have tried to become more inclusive with their gameplay character designs game design actors and choice of inspiration. According to many players some companies do it better than others. One company Guerrilla Games created a game series called Horizon including two games Zero Dawn and Horizon Forbidden West (with a promised third game in the making) and is reputed by its players as having created diverse and inclusive characters gameplay and design. Most articles about the Horizon series generally praise the company for its approach to gender equality. In contrast a few others feel the game does not fit their ideas of what characters should be or look like. Through my research I aimed to analyze the construction of gender further within the Horizon world through a social-cultural linguistic and anthropological lens. In my research I looked at how the Horizon series constructed sexuality and gender within their games. To successfully do this I used anonymous surveys and semi-structured interviews with individuals who have played the games and my own experiences to understand their insights on gender construction and whether they thought it was a good or fair representation. Through these specific methodologies I have understood how game writers may be able to build better diversity and representation through the construction of gender and sexuality in video games.

**Faculty Mentors:** Dr. Jenanne Ferguson & Dr. Katie Biittner

# A Systematic Review of Fatigue Definitions: Seeking Consensus Across the Literature

**By:** Zachary Jickling

Fatigue is a complex and multidimensional concept that is not fully understood. As part of a broader study exploring Fatigue in Educational Contexts (FEC) (Rohatyn-Martin et al. 2025) research uncovered many ways of defining fatigue. Chronic fatigue in youth of all ages has negative implications for academic social emotional physical and vocational outcomes. While fatigue in children and adolescents has been examined across various domains the lack of a standardized definition presents challenges in research assessment and intervention. Children's fatigue manifests in various ways which may go unrecognized depending on the context. To address this gap a systematic review is being conducted to determine whether a consensus exists on the definition of fatigue in children across disciplines with the goal of providing greater clarity for future research and practical applications.

Following PRISMA guidelines for systematic reviews (Moher et al. 2009) an initial search identified 1280 articles related to fatigue in children. Preliminary findings indicate that no universally accepted definition of fatigue exists and few articles explicitly define the term. This inconsistency highlights the need for a more comprehensive and inclusive definition of fatigue that accounts for its various dimensions such as physical cognitive and emotional fatigue and considers the experiences of diverse populations. Establishing a standardized definition will not only enhance the accuracy of future research but also improve interventions to address fatigue in children across different contexts.

**Faculty Mentor:** Dr. Natalia Rohatyn-Martin

# Play and Play Materials in Early Learning: What Do Child Care Frameworks Across Canada Emphasize?

**By:** Sandy Lagrada

Each province and territory in Canada has a unique curriculum framework or guiding document that informs early childhood educators on curriculum planning relationships learning and care. While these frameworks share foundational principles they prioritize different aspects of early childhood education based on regional priorities and philosophies. This study examines early learning frameworks across Canada to analyze how play and play materials are described and integrated. Investigating references to play identifies the types of play recognized and the materials recommended in early learning environments. A key focus is to determine how play is embedded in curriculum planning and the extent to which provinces emphasize specific approaches such as nature-based play or the use of open-ended materials. We explored the qualitative data and coded for content analysis of these frameworks. Our preliminary analysis revealed that while play is widely acknowledged as essential to early childhood development only a couple of provinces explicitly advocate specific types of play and materials. These findings contribute to a deeper understanding of how Canadian early learning frameworks support diverse play experiences and the role of materials in shaping children's engagement and learning.

**Faculty Mentor:** Dr. Ozlem Cankaya

## Humanities

# The History and Innovation of E-mail Communication in Organizations

**By:** Joshua Bell

In recent years the global pandemic brought a shift to organizational culture and work environments due to severe changes in communication modalities which transitioned from in-person formats to reliance on digital platforms like Zoom or Teams. In the history of technology the advent of electronic mail did the same. While detailed examinations of email's history exist the dual role of e-mail and its interaction with organizational culture has produced unresolved paradoxes. This paper seeks to examine the overlooked benefits and forgotten challenges of e-mail along with subsequent communicative technologies beyond the traditional economic framework. Email created 'virtual offices' and 'social capital.' Challenges however included 'information overload' or blurred ethical conduct long before such factors became common focus areas for organizations in more recent times. From 1970 to 2000 e-mail revolutionized organizational communication. As more businesses adopted such technology to maintain a

competitive advantage they often overlooked unintended consequences. The rise of e-mail came at a time when the world became more globalized than ever yet less connected in certain ways. The embrace of e-mail first started in the United States and such a focus aided firms to explore opportunities in other regions such as Canada the UK and internationally. This broader perspective can gauge the impact of organizational culture in environments locally and abroad.

**Faculty Mentor:** Dr. Aidan Forth

# Placement in the Archives: a History Degree in Action

**By:** Damien Camp

This presentation will cover Name Authority Records the research and creation of the ones I underwent during my internship for individuals with importance to some major series in the Provincial Archives of Alberta collection their significance for archives such as the PAA and their role in learning history.

**Faculty Mentor:** Dr. Aiden Forth

# Joan of Arc - A Study in Virginal Power and Female Autonomy

**By:** Steven Jewkes

This work examined the life of Joan of Arc a visionary and military leader from fifteenth-century France through contemporary records and later post-humous interpretations by admirers and detractors alike to determine if Joan was able to achieve autonomy in her brief career and if so by what methods. Using these resources it argues that Joan was clearly able to achieve an unprecedented level of political and military autonomy for a common woman in fifteenth-century Europe by using the holy notions of virginity and divine connection that has allowed many mystics and visionaries to ascend beyond their stations throughout history. Furthermore it considers the gendered notions of clothing that were clearly at play as many considered Joan to be 'dressing as a man' and changing her identity to achieve her goals an argument that this paper disagrees with based on the evidence.

**Faculty Mentor:** Dr. Sean Hannan

# Women in Historic Alberta

**By:** Alyssa Korpesio

For the Winter term I am participating in a field placement at Old St. Stephen's College where I am doing research on women connected to Victoria Settlement and Dunvegan. I will be looking into women who have little known about them and then drafting social media posts about them and why they were important.

**Faculty Mentor:** Dr. Aidan Forth

# Ma petite ville

**By:** Courage Omale

This poster is a visual representation of an assignment conducted in my FREN 365 class (topics in Francophone literature.) It is an overview of the Albertan town "Grande Cache." In keeping with the original intent of the assignment the text describing each unique aspect of Grande Cache will be written in French.

**Faculty Mentor:** Dr. Marla Epp

# Religion in the Ancient World; The Role of Religion and Sacrifice within War

**By:** Paige Reed

This essay will delve into the connection between religion and warfare in the Graeco-Roman world. In my research I examine the influence of religion on warfare and the evidence of this within ancient artifacts. The relationship between divine and man allows one to have a more in depth understanding of the relationship of war and religion including sacrifice had within their societies.

**Faculty Mentor:** Dr. Matt Gibbs

# Home Front: Early Modern Families in Wartime

**By:** Jake Ristic-Petrovic

The wives children and other relations of soldiers and sailors in early modern Europe were like all aspects of society profoundly affected by the changes of the era. Discouraged from following armies into war as camp followers they were often subjected to poverty and forced to redefine their social roles in order to create new survival strategies. In my presentation I will analyze some of the ways in which society changed to accommodate the needs of families on the "home front" during this period from female agency in business for the lower classes to upper class politicking at soirees from crime to philanthropy.

**Faculty Mentor:** Dr. Rob Falconer

# La ville de l'avenir

**By:** Farista Sairuv

In her comic series Hiver Nucléaire Cab presents a warning of what dangers and hardships will come if humanity fails to protect the environment and each other. Using this warning I sought to imagine a vision of a future where community and ecological stewardship are at the forefront of society. This idea forms the basis of my creative writing project La Ville de L'Avenir.

**Faculty Mentor:** Dr. Marla Epp

# Royal Alberta Museum Research

**By:** Sean Simoneau

A presentation on the research and topics I studied on behalf of the Royal Alberta Museum as an Intern with the Military and Political History section for my History 499 Class under Aidan Forth. discussing the different websites and research I used to determine the Historical context and provenance of different items for cataloging and preservation with the Royal Alberta Museum

**Faculty Mentor:** Dr. Aidan Forth

# India 1984 to 1995: The Forgotten Genocide or Riots?

**By:** Harman Singh

The events from 1984 to 1995 in India led to widespread violence against the Sikh community. While often referred to as "riots" this research examines whether the term "genocide" is more appropriate based on the International Criminal Court (ICC) and United Nations (UN) definitions. The study analyzes primary and secondary sources to determine the systemic nature of these atrocities. Following Prime Minister Indira Gandhi's assassination thousands of Sikhs were killed homes and businesses were destroyed and survivors continue to suffer. By exploring survivor accounts historical records and legal analyses this paper examines the role of political leaders and law enforcement in enabling the violence. It challenges the official narrative arguing that recognizing these events as genocide is essential for justice and historical truth.

**Faculty Mentor:** Dr. Aidan Forth

# Through-lines of Greek and Trojan argument in Greek Tragedy

**By:** Isaac Sussman

A poster adaptation of a paper written for Clas-320 Greek Literature In Translation wherein I discuss the consistencies in how Greek and foreign agitators are utilized in Ancient Greek tragedy namely with a level of empathy and humanization of the enemy that the uninitiated may be surprised by. This "exhibit" for lack of a better term will explore the nature of Greek antiquity's performance art and why this style of character work manifested in it.

**Faculty Mentor:** Dr. Jessica Romney

# North Korea, Utopia?

**By:** Alem Tesfay

This presentation will examine the presence of elitism in North Korea and the systems that enable the country to function as a paradise for its elite class. Drawing on concepts learned in Modern Politics of East Asia (POLS 390) I will analyze how North Korea's political institutions political economy and civil society contribute to the sustainability of elitism effectively creating a utopia for the upper echelon of the People's Republic of North Korea.

**Faculty Mentor:** Dr. Chong Su Kim

## International Business, Marketing, Strategy, and Law

# Clicking Sticking and Leveraging: A Behavioural and Intrapreneurial Approach to Alumni Engagement

**By:** Joshua Bell

Alumni engagement retains blind spots in existing literature and in the context of university operations. Innovative models and actionable strategies are usually not discussed to the extent

that they should be resulting in less efficacy in alumni operations and engagement throughout an alum's lifecycle. Despite the role alumni play in funding branding and institutional development a systematic review of literature only revealed 16 of 155 reviewed articles discussed the most important component of alumni engagement—the beginning of the alumni lifecycle. Most institutions lack sufficient frameworks to measure and optimize alumni engagement focusing instead on basic metrics like alumni numbers volunteer hours committed and donation levels as seen in reports from Concordia SFU and USask. However institutions such as UBC UofA and UofC—stand out with advanced scoring

systems faculty-integrated initiatives and lifecycle-based engagement strategies which showcase specific departmental or faculty-based alumni data collection which can be leveraged to engage alumni clusters or cohorts.

The following report bridges theoretical constructs and models based on alumni behaviour which are mapped onto an alumni lifecycle framework—'click stick and

leverage'—to identify critical transition points and activities institutions can do in order to leverage their alumni populations to the point of high-impact activities like philanthropy volunteerships and long-term organizational collaborations with institutions through work-integrated learning.

With that data-driven metrics faculty collaboration and innovative programming can help boost alumni engagement among specific alumni clusters.

**Faculty Mentor:** Dr. Ali Taleb

# A Stronger Me: Online Resources Dedicated to Support Victims of Domestic Violence

**By:** Kori Davey

Roughly 24 people per minute experience a form of intimate partner violence in Canada. Despite this strikingly high statistic domestic violence remains among the lowest of police-reported crimes as victims often face barriers in accessing support from law enforcement due to psychological economic physical sexual or technology-facilitated abuse by their partners. Access to justice is a fundamental value in the Canadian justice system yet it becomes a major obstacle for victims of domestic abuse who seek to rebuild their lives after leaving their partners or as they attempt to leave (Government of Canada n.d.). The primary focus of this project is to provide easily accessible online information to victims of domestic violence as they navigate the legal system in Alberta. My mission is to educate encourage and empower both survivors of domestic violence and those still navigating its challenges. Resources provided will discuss emergency protection orders lawyers trained in trauma-informed response shelters and financial support. Additionally resources will be listed to help friends and family members of domestic violence victims recognize signs of abuse and offer support. Recognizing that the effects of domestic violence extend beyond an abusive relationship this website provides mental health support and online courses to empower survivors with knowledge and informed decision-making.

**Faculty Mentor:** Ashley Stasiewich

# Setting the Stage: Future Marketing Efforts for Preforming Arts Institutions

**By:** Mackenzie Hazlewood, Logan Hoover, Luke Aranas, Gurnoor Pandher & Keza Muhire

During our marketing research class we have been collecting data to supply recommendations for a marketing strategy to be used by Azimuth Theatre. We started this process early on to interview the desired target audience gather our secondary (literature) sources conduct a questionnaire and finish a final report for the theatre.

Our qualitative research for Azimuth Theatre revealed that the company wanted to learn more about its current and potential customers to better market itself. Our suggestions from the qualitative research were to narrow down their target market which they did and start using surveys/polls/social media analytics. This questionnaire will be distributed via Azimuth's email newsletter to gather further insights and suggestions from their attendees.

In our final report we will be analyzing our questionnaire data observations made at the Azimuth Theatre 'Expanse Festival' and past information from the qualitative research.

**Faculty Mentor:** Dr. Fernando Angulo-Ruiz

# Food Production and Nutritional Security in Bangladesh: Historical Trends and Future Projections

**By:** Russell Johnson & Avishek Paudel

Bangladesh is a developing country widely known for food and nutritional insecurity. While agricultural productivity has increased the country continues to grapple with nutritional insecurity particularly concerning macronutrient availability. Ensuring nutritional security especially in terms of macronutrient provision is important for Bangladesh's expanding population. This study examines the change of macronutrient availability in Bangladesh from the year 1972 to 2023 and uses time series forecasting models to predict their availability until 2040. Using the data from FAO production reports and population statistics we analyzed both the total and per capita macronutrient availability especially carbohydrates protein and fat. We used Hotelling's T squared test

alongside other statistical methods to investigate whether the domestic agricultural production has been sufficient to provide the dietary needs of the population. Our findings reveal persistent food security challenges dietary insufficiency and highlights the need for policy interventions for improved nutritional security in Bangladesh. The forecast result attests such a situation and also calls for policy changes toward increasing availability of these macronutrients by 2040. We recommend an integrated policy and investment package containing sustainable agricultural and food production and nutritional security. This research provides important insights for all stakeholders and policymakers for long-term food production and nutritional security of Bangladesh.

**Faculty Mentor:** Dr. Wanhua Su

# Strategic Marketing for Family-Owned Luxury Dealerships: Building Brand Authenticity at Lexus of Edmonton

**By:** Maria LeMaistre, Chalci Maxwath, Shion Hirano, Sierra Cysouw & Genia Goldstein

This report outlines a targeted marketing strategy for Lexus of Edmonton a family-owned luxury car dealership. It aims to increase brand awareness and engagement among its core audience of individuals aged 35-54 who prioritize authenticity and personalized experiences. In response to current luxury automotive market trends emphasizing authenticity and community Lexus of Edmonton leverages its distinct family-owned identity to differentiate itself from competitors.

The strategy consists of optimizing the dealership's landing page to enhance online user experiences updating the website to effectively convey the dealership's unique narrative and implementing a visual storyboard within the dealership to ensure cohesive in-person branding. Collaboration with marketing and design professionals supports this integrated approach maintaining consistent and compelling messaging across all platforms.

The total financial investment required ranges from $5500 to $7700 covering landing page optimization website updates and the in-person storyboard installation. Effectiveness will be evaluated through metrics including website engagement data and customer feedback collected via QR codes and direct interactions.

Ultimately this marketing initiative seeks to solidify Lexus of Edmonton's market presence by cultivating personal connections and building trust within the local

community. By strategically communicating the dealership's authentic family-oriented identity across online and offline channels the company expects enhanced customer engagement clearer brand differentiation and sustained growth in the competitive luxury automotive market.

**Faculty Mentors:** Dr. Fernando Angulo-Ruiz & Dr. Jenn Danko

# Enhancing MacEwan's Career Services

**By:** Callie Linke & Tamia Bingham

Management Problem:

- MacEwan Career services face low student engagement due to lack of awareness and perceived value

- Career Services provides essential job-related resources such as resume-building job search assistance and career counselling yet only 10% of students use the services they have to offer

Research Approach:

- Conducted quantitative research through in-depth interviews with students and faculties

- Secondary research included academic literature review on career services utilization marketing strategies and student perception

- Key research questions:

o How do students and faculty learn about Career Services

o What are their perceptions of Career Services

o What services do they use and how beneficial are they

Key Findings:

- Awareness issue: Many students are not aware of Career Services or what they have to offer

- Marketing gaps: Current outreach methods (emails posters classroom visits)

- Perceived stigma: Some students view them as a last-minute effort rather than a proactive resource

- Faculty's role: Professors could be valued promoters of Career Services if properly informed

**Faculty Mentor:** Dr. Fernando Angulo-Ruiz

## Adapting to Geopolitical Tensions: Strategic Approaches for Canadian Automotive Companies

**By:** Faeben Mekonnen, Cyril Fahmy Wasef, Jonah Jakobs, Erriane de Ocampo & Madison Kohlsmith

Canadian automotive companies such as Magna International face growing uncertainty due to geopolitical tensions evolving tariff structures and shifting supply chain dependencies. The uncertainty surrounding the tariff regime proposed by the Trump administration presents significant challenges for the Canadian automotive sector which is deeply integrated with the U.S. industry. This research explores strategic pathways for Canadian automotive firms to mitigate such risks and enhance global competitiveness.

Utilizing an exploratory research approach and secondary research methodologies this study analyzes supply chain strategies and market diversification opportunities for Magna International. Preliminary findings suggest key strategies including expanding beyond the U.S. market through trade agreements such as CETA and CPTPP to reduce reliance on the USMCA-covered markets. Another strategy involves relocating more of Magna's Canadian manufacturing operations to the U.S. to bypass tariffs weighing cost and market access considerations. This will be compared to maintaining the status quo—keeping operations in Canada while absorbing tariffs.

Additionally the study examines joint ventures with global automotive leaders to integrate into their supply chains and leverage advanced R&D capabilities. Such partnerships could provide a strategic workaround to tariffs while fostering innovation. Furthermore alternative sales models—such as prioritizing luxury and high-margin vehicle segments—could help Canadian firms navigate geopolitical uncertainties. By adopting these adaptive strategies Canadian automotive companies like Magna International can mitigate geopolitical risks and strengthen their global market position in an increasingly uncertain trade landscape. This research aims to provide actionable insights to enhance resilience and competitiveness in the industry.

**Faculty Mentor:** Dr. Murli Muralidharan

# Enhancing Career Services Engagement: Understanding Accessibility and Awareness Among Third-Year Students and Above

**By:** Diana Pedrajas, Lara Savka & Manika Kallychurn

Knowing the disproportionate number of appointments among MacEwan's various programs our research objective is to thoroughly understand why not as many students use Career Services. This includes examining factors such as barriers that prevent students from coming in. We want to know how the general student body perceives Career Services and whether there are any preconceptions towards Career Services that can be changed or corrected. These may consist of understanding the level of awareness students have about Career Services the students' preferred communication channels their preference regarding the resources and utilities offered determining the effectiveness of Career Services' advertisement in-campus and how to best fit the service hours to students' schedules. Through our research efforts we aim to acquire an intricate discernment of the demographics specifically of students in their third year and above and formulate actionable recommendations to increase the visibility of Career Services—to especially boost the number of appointments in programs outside of the Faculty of Arts & Sciences and School of Business.

**Faculty Mentor:** Dr. Fernando Angulo-Ruiz

## Management and Organizations

# From Bench Press to Bottom Line: Navigating Consumer Behaviour at the Don Wheaton YMCA

**By:** Joshua Bell & Bell & Nahuel Medina Garcia

The Don Wheaton YMCA located in downtown Edmonton has suffered significant changes in consumer behaviour and corporate memberships due to the pandemic. However these changes have come to stay as more individuals choose to work from home or are deterred by obstacles like construction road work homelessness and more.

This teaching case study explores the struggles that this specific downtown gym has suffered and the changes management has made to try to change membership levels and entice more corporate membership accounts. It highlights the strategic responses

management has implemented including pricing adjustments marketing campaigns and community engagement initiatives.

Designed for undergraduate and early graduate business students this case offers insights into market conditions industry data consumer behaviour and strategic management. Through that students can evaluate real-world challenges through frameworks such as SWOT Porter's Five Forces PESTLE and more advanced models.

**Faculty Mentors:** Dr. Charles Keim & Dr. Bruce Thomson

# A Literature Review of Post-Pandemic Workplace Experiences of Foreign-Trained Medical Doctors and Nurses in Canada: Analyzing Job Satisfaction, Career Advancement Issues and Opportunities

**By:** Cyril Fahmy Wasef

Foreign-trained medical doctors and nurses play a critical role in Canada's healthcare system by alleviating staffing shortages improving access to specialty and primary care and supplementing healthcare services in underserved communities. These specialists supplement hospital personnel emergency rooms long-term care institutions and community health allowing continuity of care in the face of growing patient demands. Their expertise enhances the quality and productivity of healthcare delivery making them a vital component of the system's viability and growth. However extant research has indicated that these professionals face challenges that affect their career advancement and job satisfaction.

This literature review examines studies published between January 2020 and December 2024 focusing on workplace experiences leadership representation job satisfaction and professional growth opportunities. Studies have indicated that workplace experiences of discrimination credentialing barriers and limited access to senior leadership positions are identified challenges professionals encounter. Foreign-trained medical doctors struggle with residency placement in Canada restricting career mobility while foreign-trained nurses often face biases in hiring and promotion. The issue of job satisfaction is influenced by mentorship and support networks; despite these barriers the literature review process and analysis present some opportunities for mentorship programs and improving credential recognition to reduce barriers. This

literature review highlights the need for more targeted approaches to maximize the contributions of foreign-trained medical professionals and enhance their job satisfaction and career advancement so they can effectively contribute to the healthcare system in Canada.

**Faculty Mentor:** Dr. Theresa A. Chika-James

# A study of Edmonton Short Film Festival: Engaging Youth in Short Film Festival Participation

**By:** Elise Frederickson

(ESFF) aims to address the lack of youth engagement in its events by determining methods to increase short film submissions and audience attendance among the Gen Z demographic. By understanding the target's preferences and barriers to participation the research objective is to identify strategies to increase visibility reduce submission intimidation and address financial and preference concerns for ESFF's prospective youth filmmakers and audience members.

**Faculty Mentor:** Dr. Fernando Angulo-Ruiz

# Can Priming Job Candidates with Matriarchal Values Lead to Gender-Equal Hiring?

**By:** Madylin Gillett

Cognitive ability tests display gender biases particularly in spatial assessments like the mental rotation task (MRT). Recent research highlights how these biases contribute to broader disparities in hiring especially in male-dominated fields like engineering and aviation (Stewart-Williams & Halsey 2021). This paper proposes addressing these biases by priming candidates with matriarchal values a novel intervention to stereotype threat caused by cognitive ability tests. Matriarchal priming exposes candidates to cultural values of equality collaboration and inclusion. This paper aims to advance unbiased hiring practices. By lessening gender disparities organizations can adhere to legal standards fostering inclusivity in hiring practices that benefit all stakeholders.

**Faculty Mentor:** Dr. Francoise Cadigan

# Gender Pay Disparities: Law vs. Reality in the Construction Industry

**By:** Harnoor Grewal

This research examines the gender wage gap in the construction industry through the lens of employment law focusing on how historical and contemporary legal frameworks influence this persistent inequity. Despite legislative milestones such as the Canadian Human Rights Act (1977) and the Pay Equity Act (2018 effective in 2021) wage disparities between men and women remain prevalent. The study centers on the question: Why does the wage gap persist despite legal measures? How effective have these laws been in addressing the issue?

Previous research highlights the development of pay equity legislation beginning with the 1942 "equal pay for equal work" principle the Ontario Equal Pay Act of 1951 and the Employment Equity Act of 1986. While these efforts signify progress systemic barriers such as occupational segregation and enforcement challenges continue to hinder gender wage parity.

This paper aims to fill a critical gap by addressing the scarcity of recent studies on the gender wage gap in Canada particularly in the construction industry. This study offers new insights into the legal and structural factors perpetuating wage disparities by updating the research and narrowing the focus to a male-dominated field.

The research methods include a legal analysis of the timeline and effectiveness of wage gap laws and a review of construction industry-specific data to assess their impact. This research contributes to the broader discourse on pay equity by offering actionable insights into strengthening legal and HR practices to ensure compliance and fairness in the workplace.

**Faculty Mentor:** Dr. Bruce Thomson

# Human Resources Management in Africa

**By:** Jesse Grywacheski

The continent of Africa has undoubtedly faced much turmoil over the past few centuries and has been rising out of devastation post-colonization. The implications of shifting

from the apartheid and colonial periods into a new ideology that deviates from segregation and discrimination have had a drastic effect on how human resources management operates across Africa. Factors such as political power and independence MNCs and foreign investors differences between the private and public sectors culture and diversity and employee engagement all contribute to how human resources management operates within organizations. These ideological changes have prompted research on human resources management in Africa and have raised questions regarding the current state and the future perspectives of HRM in Africa. Utilizing research studies conducted by multiple scholars and authors this paper aims to identify factors affecting how human resources management functions in Africa identify knowledge gaps and give recommendations for future studies.

**Faculty Mentor:** Dr. Bruce Thomson

# Enhancing Undergraduate Learning Through Business Case Writing: A Reflective Analysis

**By:** EJ Adrian Manangan

Business case studies are widely used in higher education institutes to bridge the gap between theory and practice offering business students the opportunity to analyze real-world scenarios and apply academic theories to develop strategic solutions (Escartín et al. 2015). Traditionally business case studies are created by academic instructors and graduate students. However the process of business case writing can also involve undergraduates enhancing their critical thinking problem-solving and writing skills ultimately boosting employability through the development of key competencies valued in the workplace (Boulocher-Passet 2015; Escartín et al. 2015; Vega 2009). Escartín et al. (2015) highlight that business case writing fosters critical thinking communication and teamwork encouraging collaborative learning. This presentation shows an undergraduate student's reflective experience in business case writing using Gibbs' reflective cycle (Gibbs 1988). The author reflects on co-writing three business case studies and three mini-case exercises with a business professor over a year emphasizing problem-solving teamwork and complex idea communication skills. Key challenges such as time management and course workload balancing are examined with recommendations provided for enhancing student engagement. Insights from relevant literature are presented to further indicate the benefits of case writing for undergraduate students providing information to enhance both student participation and instructor guidance.

**Faculty Mentor:** Dr. Theresa A. Chika-James

# Transformational Leadership Emotion and Women in Leadership Roles

**By:** Jolie Nawar

Over the last decade women attaining CEO or President positions has increased from seventeen to twenty-nine percent. Their stylistic choice to lead is often transformational leadership. Transformational leadership is also currently on the rise for all who are in leadership positions. But why is it that women more frequently follow this style over men? The coupling of the rise of both women and transformational leadership led to the question of why this is so. The pillar of transformational leadership stands on individualized consideration. However that becomes challenging amidst the ever-changing business environment with stress becoming imminent. Stress affects the way people behave whether that is the leader or the follower. The way women handle stress often follows the Tend and Befriend theory while men follow the Fight or Flight pattern thus impacting how they handle situations. Emotion plays a central role in the workplace as it is seen in responses to stress with its effect is understood through the phenomenon of emotional contagion. Emotion plays a crucial role in shaping the workplace environment influencing individual mindsets and overall business outcomes. Recognizing and addressing its impact requires empathy and emotional intelligence-key traits of transformational leadership. We propose that women's success in leadership stems from their ability to understand recognize and harness emotion effectively. This includes essential elements such as empathy emotional contagion and their unique physiological characteristics.

**Faculty Mentor:** Dr. Bruce Thomson

# AI Awareness and its Effect on Employee Behaviour and Well Being

**By:** Viktoria Valach

This research project explores how AI awareness impacts employees in client-facing roles. Using the Six-Factor Model of Psychological Well-Being the literature review will

build a foundation for understanding how AI awareness affects employee behavior and well-being. This insight will guide future experiments to examine AI's role in the modern workplace as technology continues to evolve.

**Faculty Mentor:** Dr. Francoise Cadigan

# Disabilities in the Workplace - the Impact of Policies and Procedures

**By:** Ana Vidal Oscar

Disabilities are vast ranging with different impairments and abilities so they cannot be talked about under the same umbrella or have the same experience. Even people with the same disability can experience the same situation but struggle with it differently depending on the severity. Cerebral Palsy is broad and affects individuals differently depending on the severity. In general Cerebral Palsy is a permanent brain injury that occurs while the brain is developing or during childbirth from lack of oxygen. It causes an individual limb to be affected to experience poor coordination stiff muscles and uncontrollable movements (Vitrikas Dalton & Breish 2020).

Current research does not take into account the nature scope and dynamics of the effects of Cerebral Palsy on the ability of the employee to be and effective and efficient member of the organization. Research articles contain only assumptions and depictions of what it is like having Cerebral Palsy and being employed (Vitrikas Dalton & Breish 2020). Therefore by putting forth that policies and procedures can be viewed as a barrier how do policies and procedures impact people with Cerebral Palsy and their ability to do their job. Do they cause substantial barriers to perform as successfully as they could. By asking these types of questions we hope to provide understanding on policies and procedures in organizations.

**Faculty Mentor:** Dr. Bruce Thomson

**Mathematics and Statistics**

## Assessing NHL Contract Valuation Through Statistical Modeling

**By:** Stuart Dovey

This research project aims to provide valuable insights into NHL player contracts using performance metrics from the 2023-24 regular season. Specifically, it focuses on predicting Average Annual Values (AAVs) through regression analysis and tree-based modeling methods. Using data scraped from Hockey Reference and contract details from PuckPedia, this analysis incorporates advanced performance metrics like Corsi, Fenwick, scoring efficiency, and time on ice to model player contract values. By comparing predicted AAV to actual AAV, we identify players who are overpaid or underpaid relative to their contributions on the ice. The analysis highlights several key predictors of AAV and also reveals patterns related to entry-level contracts. This research not only assesses whether a player's performance aligns with their contract but also offers predictive insights that could inform future contract negotiations and extensions.

**Faculty Mentor:** Dr. Brian Franczak

## Fermat's Last Theorem and the Golden Mean

**By:** Leif Fitzsimmons Frey, Chris Dela Cruz & Tom Luu

We attempt to find solutions to the Diophantine equations from Fermat's Last Theorem in the ring Z[τ] where τ is the golden mean. We begin with the case when n = 3 and create an algorithm to generate solutions to the equation. Out of these solutions we have found only four to be primitive. Also we attempt to find solutions under higher powers greater than three but have not found any solutions in such cases. The algorithm and solutions themselves are all provided in the paper.

**Faculty Mentor:** Dr. Chris Ramsey

## Failure Rates Of The Matrix Triangle Inequality

**By:** Osman Jime & Jordan Kaseram

The triangle inequality is a fundamental principle in mathematics. However its validity is not always guaranteed in matrix theory specifically when dealing with the matrix absolute value. We investigate how often the matrix absolute value satisfies the triangle inequality for different spaces of matrices. By using numerical methods we quantify the frequency with which the triangle inequality holds and examine possible key factors contributing to its success or failure.

**Faculty Mentors:** Dr. Chris Ramsey & Dr. Michael Francis

# Dynamical Models of Competition with and without Partial Cooperation in Population studies

**By:** Esa Johnson

Our research is focused on the comparison of two models of Competition between predators that hunt the same prey in the same habitat.

One of the models is a classical competition model which can lead to one of well-known results: either the persistence of both species which reveals itself as an interior global asymptotically stable equilibrium or to the extinction of one of the species in the specified region.

The other model is new and original: it involves a partial cooperation from one predator: the more proficient predator shares his spoils with the sloppier hunter. By doing this the first predator increases it's own hunting efficiency.

The results are obtained by means of analytic and numerical analysis of the dynamical systems proposed as models.

**Faculty Mentors:** Dr. Mark Solomonovich & Dr. Adrian Biglands

# Enumeration of Latin Squares

**By:** Jordan Kaseram

On the enumeration of Latin squares and other similar structures using the chromatic polynomial.

**Faculty Mentor:** Dr. Michael Francis

# Tensor Products and Compact Containment

**By:** Hunter Labrecque

This work explores the behavior of compact containment under tensor products within the framework of C*-algebra ideals. We establish the fundamental definitions. We then prove the key result: the tensor product of compactly contained ideals retains the compact containment property. The "compact containment" relation initially defined for open set inclusion captures a more nuanced relationship than simple containment. The statement "open set U is contained in open set V" is often too broad. For example V containing U plus a single additional point is fundamentally different from U being a subset of V where the closure of U is entirely within V. In locally compact spaces the relevant setting for our work we refine this notion. We require that the closure of U is compact and contained within V. This condition known as "compact containment" or the "way below" relation provides crucial additional information. Importantly this topological concept has a corresponding analogue in the category of C*-algebras making it a valuable tool in both contexts.

**Faculty Mentor:** Dr. Cristian Ivanescu

# Patterns of in-game learning support use and game performance and their impact on engagement and disengagement in a biology educational video game using k-means clustering.

**By:** Samantha Malek

Educational video games can enhance student learning more effectively than traditional instructional methods. Game features that support players' needs improve motivation and engagement. This study aims to use k-means clustering to identify student profiles based on their use of in-game learning supports and game performance. Gameplay data was collected from 172 undergraduate students who played the biology educational video game Life on the Edge as part of their course materials. This dataset includes the frequency and duration of in-game learning support use the number of game levels played completed and failed. K-means clustering will be done to group

students based on these gameplay patterns identifying different game engagement profiles. Students also completed a survey that assessed their engagement and disengagement with the game. A MANOVA examined self-reported engagement and disengagement across the identified clusters. These findings can provide insights into how different players interact with educational video games informing both instructional strategies and game design.

**Faculty Mentor:** Dr. Wanhua Su

# An Algorithm to Check the Goldbach Conjecture

**By:** Nolan Oleny & Anirudh Mankotia

A basic approach to reducing even numbers such that we produce a set of pairs of odd numbers where the first number in each pair is a prime and the set of pairs we produce includes at least one pair of primes which satisfies the Goldbach Conjecture.

**Faculty Mentor:** Dr. Cristian Ivanescu

**Nursing**

# Deep vs. Superficial Learning in Nursing Students

**By:** Sarah Burden, Kiara Ukrainetz & Taij Mann

Deep and superficial learning approaches significantly impact nursing students' educational development and clinical competencies. Superficial learning relies on rote memorization and minimal conceptual understanding, often leading to difficulties in applying knowledge to patient care and problem-solving. In contrast, deep learning promotes critical thinking, knowledge integration, and the development of essential clinical skills, which are crucial for safe and effective nursing practice.

Research suggests that students who engage in deep learning strategies retain information better, adapt more efficiently to clinical settings, and demonstrate improved clinical reasoning and decision-making skills (Dolmans et al., 2016; Khong & Tanner, 2024). Active learning techniques, such as problem-based learning (PBL), case-based discussions, simulation exercises, and reflective practice, have been shown to foster deep learning by encouraging engagement and contextual understanding. Furthermore,

self-regulated learning strategies and intrinsic motivation play a pivotal role in transitioning students from passive knowledge consumers to active learners.

This poster presentation highlights evidence-based teaching approaches that support deep learning in nursing education, emphasizing their impact on anatomical and physiological knowledge retention. By promoting deep learning, nursing programs can better prepare students to provide high-quality, patient-centered care in the clinical setting. Encouraging lifelong learning and adaptability further ensures nurses can effectively respond to complex healthcare challenges and advancements in medical practice.

**Faculty Mentor:** Dr. Raj Narnaware

# Experiences of Nursing Students With Disabilities in Nursing Programs

**By:** Brooke Davidson

Ableism is a problem in nursing. This is an issue considering increasing numbers of students with disabilities are entering nursing programs. These students bring diversity and unique strengths to nursing programs. Ensuring their inclusion and success is critical to advancing equity. Research indicates that these students frequently face discrimination, marginalization and a lack of support. A modified integrative literature review was conducted to assess the experiences of nursing students with disabilities in nursing programs in order to better understand their challenges and identify strategies for improving their experiences. Six peer-reviewed primary research studies employing diverse qualitative methodologies were reviewed. Key themes identified were: feeling the need to hide disabilities, facing discrimination, frequent challenges, and desiring community and support.

Findings revealed systemic ableism in nursing education, a lack of accommodation, and social power dynamics in clinical practice that negatively effected these students. The review findings emphasize the need for institutional change, increased faculty training, and greater collaboration with disability support services. It also identifies significant gaps in current literature, including a lack of diversity of participants and limited research on nursing students with disabilities at the graduate level. Future research should aim to increase diversity of participants and assess experiences of students with disabilities in all levels of nursing education. Systemic change, embracing inclusivity and universal design, and shifting the narrative around disability can help to improve the

experiences of nursing students with disabilities in nursing programs and create a more equitable and diverse future for the field of nursing.

**Faculty Mentor:** Dr. Emilene Reisdorfer

## Innovative Approach to Increase Preventative Cancer Screening in Rural Communities

**By:** Jaida Davoren, Sasha Ryzhova, Mayank Kaushik, Gloriya Mehriezgi & Isaiah Stobee

Our presentation explores a possible solution to the widespread and often overlooked area of cancer screening: rural access. We will delve into the possibilities and challenges highlighting the change that is needed in our system. Cancer screening should be accessible to everyone yet rural areas tend to have lower screening rates and higher mortality rates. We propose having a mobile screening unit- which we will outline in terms of logistics costs and the long-term economic benefit of preventative screening/medicine.

**Faculty Mentor:** Lisa McKendrick-Calder

## Conceptualizing Relational Agency: A Concept Analysis

**By:** Mayank Kaushik

In 2021/2022 Canadian adult correctional services recorded 258210 custodial and community admissions. The transition processes into and out of these facilities are complex. In Canada incarcerated individuals experience marked disparities in social determinants of health. Those with a history of incarceration frequently report limited access to primary care unmet health care needs and present more often to emergency departments as well as have more complex care needs. Relationships with service providers including nurses outreach workers and community supervision officers are pivotal in the experience of transitioning into and out of correctional facilities. Meaningful relationships are shaped by relational agency. Relational agency refers to how a relational space may facilitate an individual's capacity to develop agency thus reinterpreting their world identifying resources and then acting upon these expanded

understandings. Although the idea has gained traction in education social work and nursing its key attributes remain unclear. This project aims to address the current conceptual ambiguity of relational agency by employing Rodgers' evolutionary concept analysis methodology to identify the key attributes of relational agency. The project's significance is that it will enable future research based upon a refined conceptual framework to create an intervention for nurses and other care providers assisting incarcerated and formerly incarcerated populations.

**Faculty Mentor:** Dr. Morgan Wadams

# Harnessing Generative AI (Gen AI) in healthcare: transformative implications for nursing education

**By:** Taij Mann, Kiara Ukrainetz & Sarah Burden

The implication of Artificial Intelligence (AI) in teaching and learning human anatomy in medicine allied health and nursing disciplines is highly debated but remains unclear. Our study aims to explore the extent and capacity of AI in teaching and learning in nursing education compared to medicine and allied health disciplines. We conducted a qualitative analysis of AI use by employing databases such as CINAHL PubMed BNI and Google Scholar. Our findings will explore current applications identify research gaps and highlight opportunities for advancing nursing education with AI.

**Faculty Mentor:** Dr. Raj Narnaware

# Enhancing Primary Care Efficiency: The Role of AI in Supporting Nurse Practitioners

**By:** Gloriya Mehriezgi

Canada's healthcare system faces a growing crisis. An increasing number of patients lack access to a primary care provider due to systemic challenges and workforce shortages. Excessive documentation and non-clinical responsibilities reduce time spent on patient care contributing to burnout and shortages of nurse practitioners. These challenges lead to longer wait times reduced access to healthcare and heightened system strain.

Artificial Intelligence offers a promising solution by automating administrative tasks such as documentation billing and patient management. AI-powered speech recognition and natural language processing tools can transcribe patient interactions generate clinical notes and organize medical records with minimal manual input. By streamlining these processes AI enables nurse practitioners to focus on patient care improving job satisfaction and reducing burnout. Additionally AI-driven tools can optimize patient triage appointment scheduling and resource allocation enhancing healthcare efficiency. AI-powered algorithms also assist in early disease detection and clinical decision-making improving diagnostic accuracy and patient safety.

Despite its potential AI adoption in healthcare faces significant barriers including privacy concerns algorithmic biases and the financial burden of implementation which may exacerbate healthcare inequities. Ensuring responsible AI integration requires robust validation oversight and equitable access strategies.

This study examines AI's role in reducing administrative burdens while maintaining high standards of patient care. By addressing privacy accessibility and sustainability concerns this research aims to explore how AI can enhance rather than disrupt primary care delivery ultimately improving healthcare efficiency and nurse practitioner well-being.

**Faculty Mentor:** Dr. Tai Munro

# Anxiety Factors among Nursing Students During Clinical Placement.

**By:** Kazi Nawme Nilema Mihila

Clinical practice is an integral part of nursing school, helping students build essential skills (CASN, 2015, p. 13). Studies show the clinical learning environment is one of the leading factors causing anxiety among nursing students (Suen et al., 2016, p. 574). This poster reflects the anxiety factors nursing students experience in clinical placement. A comprehensive literature review was done using the CINAHL database, and recent relevant peer-reviewed articles were analyzed to identify recurring themes and patterns. Factors like feelings of inadequacy, inappropriate conduct of instructors, and negative behaviours of staff were emergent in the articles. These findings highlight the importance of addressing the anxiety factors and the need for more research.

**Faculty Mentor:** Dr. Emilene Reisdorfer

# Experiences of MacEwan University Nursing Students with Violence at Clinical Sites

**By:** Sehzpreet Padda & Reyna Parikh

Clinical workplace violence is a significant concern in healthcare, with nursing students being particularly vulnerable. Students face varying forms of violence during their clinical placements, leading to many detrimental effects that are not extensively explored in literature.

Purpose: This qualitative study aims to understand the nursing students' experiences of violence at the clinical site and the impact of those experiences on their perceptions of the nursing profession.

Methods: Semi-structured interviews were conducted with 14 nursing students from MacEwan University who experienced or witnessed clinical violence during their clinical placements in Edmonton hospitals. Data was coded and analyzed via thematic analysis using the software NVivo to identify common themes amongst the nursing students' experiences.

Results: Three themes emerged from the data - 1) Many faces of violence (emotional/psychological, physical, verbal, and sexual abuse); 2) Ups, downs, and breakthroughs in the clinical learning (learning under threat, lessons from the unexpected experience); 3) Evolving perspectives of the nursing practice (feelings of helplessness, getting blamed for violence); 4) Navigating the rough edges of care (media portrayal when violence crosses the line, gaps in workplace violence and safety nursing education, coping mechanism).

Conclusion: Overall, nursing students faced various types of violence and their experiences contributed to changing perceptions of the nursing practice. Student's provided recommendations such as making the workplace environment safe and enhancing workplace violence and safety education in the nursing curriculum to make them feel further supported. Further research needs to be done to incorporate violence management in nursing education and enhance support for nursing students at clinical sites.

**Faculty Mentor:** Dr. Mary Asirifi

# Beyond the Textbook: Unlocking the Future of Nursing Education

**By:** Kiara Ukrainetz, Taij Mann & Sarah Burden

Immersive learning technologies including augmented reality (AR) virtual reality (VR) and simulation have transformed education across various fields yet their adoption in Canadian nursing schools especially in anatomy and physiology education remains limited. This systematic review aims to examine the extent of immersive learning's utilization in Canadian nursing programs by reviewing literature from three key databases CINAHL PubMed and Google Scholar. The study aims to highlight the potential benefits of these technologies in enhancing nursing education demonstrating that while immersive learning is well-integrated into clinical simulations and allied health its application in foundational science education is significantly underexplored. The findings of this review could inform curriculum development and advocate for the broader integration of immersive learning in nursing education in Canada.

**Faculty Mentors:** Dr. Raj Narnaware & Melanie Neumeier

# Factors Related to Burnout For Canadian Nurses During the COVID-19 Pandemic an Integrative Review

**By:** Jonah Zwaigenbaum & Sarah Franks

The aim of this integrative review was to examine the qualitative and mixed methods literature about the determinants of nursing burnout during the COVID-19 pandemic to understand the factors that led Canadian nurses to feeling burnout in the pandemic in a holistic way. The method used was a keyword search of the database PubMed. Inclusion criteria were used to select articles that examined burnout of Canadian nurses during the COVID-19 pandemic in the timeframe of 2019-2024. The final sample included six articles. Based on thematic analysis factors related to burnout throughout the articles were moral distress exhaustion organizational issues and support. Understanding these factors is vital for healthcare professionals and organizations to reduce nursing burnout especially for future health crises.

**Faculty Mentor:** Dr. Janet Kemei

# Computational Modelling of the Reaction Path for Dioxygen Splitting by Carboxylate-Bridged Oxo-Centered Trinuclear Rh(III) Complexes

**By:** Akash Annadurai

No abstract available.

**Faculty Mentor:** Dr. Jorge Llano

# Polymer-Based Membranes for Carbon Capture

**By:** Erik Bartley & Hailey Doyle

With the global threat of greenhouse gas-induced climate change, carbon capture, utilization, and storage technologies have been identified as a tool for the mitigation of greenhouse gas emissions in an attempt to meet the goals set out by the Paris Agreement in 2015. Polymeric gas separation membranes consisting of a functionalized selective layer and a nanoporous base layer have garnered attention as $CO_2$ capture tools by demonstrating high performance in separation and low energy consumption potential - factors important for industrial application. Fabrication of the polymeric membranes is usually performed by phase inversion and precipitation methods and followed by characterization techniques such as differential scanning calorimetry, thermogravimetric analysis, nitrogen sorption, Fourier-transform infrared spectroscopy and scanning electron microscope imaging to analyze their structural potential. In attempts to improve the selectivity and permeability of the selective layer and surpass the Robeson-upper bound, new heteroaromatic triptycene compounds were synthesized and tested for forming a new polymer for a $CO_2$ capture membrane. Monomers were synthesized using common organic chemistry techniques such as brominations, Friedel-crafts reactions, Grignard reactions, and organometallic coupling reactions. The success of the organic reactions was monitored primarily with thin-layer chromatography and nuclear magnetic resonance spectroscopy. Through characterization, the fabrication of membranes was deemed successful, and the organic

reactions had varying degrees of success with the CO2 separation abilities of the resultant membranes to be tested.

**Faculty Mentor:** Dr. Samuel Mugo

# A Novel Spectrophotometer Based on Musical Tesla Coil Speakers

**By:** Felicity Bautista

This study focuses on testing variety of metals for emission behaviour using inexpensive Tesla coils as excitation sources. Atomic Emission Spectra have been acquired from a range of metals and characterized by whether each metal produces good mediocre or weak spectra. Those cations that do provide useful emission spectra will be used in unknown sample preparations for first year undergraduate students. This study provides a safer alternative to the standard flame test for the identification of metal cations for CHEM 101 students.

**Faculty Mentor:** Dr. Ross Witherell

# Investigating Fluid Fine Tailings Treatment for Improved Water Quality in Oil Sands Operations: A Chemistry 497 Internship at Natural Resources Canada

**By:** Emily Chatwin

As part of a Chemistry 497 research internship at Natural Resources Canada this study focuses on evaluating water treatment strategies for fluid fine tailings (FFT) from oil sands operations. This is a critical environmental issue as tailings ponds in Fort McMurray Alberta are vast enough to be seen from space. Research is conducted using 14 experimental columns six acid rock drainage columns and eight base mine lake (BML) columns to determine whether treated water can be safely reintroduced back into the ecosystem. Water quality is assessed through pH conductivity microbial analysis and chemical characterization of naphthenic acids and polycyclic aromatic

hydrocarbons (PAHs). Samples are filtered and analyzed using PC titration total organic carbon (TOC) and inductively coupled plasma optical emission spectrometry (ICP-OES) to determine elemental composition.

This internship has significantly enhanced both technical expertise and professional skills. Key responsibilities such as managing the weekly column routine processing water samples and calibrating instruments have fostered a deeper understanding of lab operations. Effective time management and multitasking have been crucial in balancing experimental work with data analysis and reviewing standard operating procedures (SOPs). Applying theoretical concepts including chemical equilibrium and oxidation reactions in a practical laboratory setting has emphasized the importance of precision and critical thinking in environmental chemistry. This research plays a major role in advancing remediation strategies for oil sands-impacted water and promoting sustainable water management while building essential skills in scientific research and environmental analysis.

**Faculty Mentor:** Dr. Samuel Mugo

# Investigating cadmium sorption through FTIR and ICP-OES

**By:** Rebecca Cruickshank

Our research seeks to characterize the sorption properties of microbialites collected from Adams Lake a carbonate-rich mountain lake in western Alberta Canada. Microbialites were exposed to 10-100 ppm cadmium (Cd) and sorption and precipitation of Cd was studied across a pH range of 4- 11. Cd concentrations from each experiment were determined using inductively coupled plasma optical emission spectroscopy (ICP-OES). The microbialites were then measured using Fourier transform infrared (FTIR) spectroscopy in order to characterize and track variations of Cd sorption or precipitation on the microbialites. Sorption to the microbialites increased with increasing pH. At pH values above 8 Cd was found to precipitate out of solution in our negative controls and on the microbialites in our experiments. Cd sorption experiments were run over the course of 48h to study the kinetics of Cd removal from solution with increasing sorption over time. These data help us to understand the rate and mechanism of Cd sorption to microbial-sediment composites and better understand environmental sinks for heavy metals.

**Faculty Mentor:** Dr. Janice Kenney

# Hands-On Analytical Chemistry: Optimizing Instrumental Techniques at MacEwan Analytical Chemistry Instrumentation Centre

**By:** Lulia Efrem

Advanced instrumental analysis is essential for accurate chemical characterization in research and industry. The global analytical instrumentation market is headed to reach USD 70.09 billion by 2030 driven by increasing research and development in pharmaceuticals biotechnology and precision medicine. During my internship at the MacEwan Analytical Chemistry Instrumentation Centre from January to April 2025 as part of the Chemistry Internship Practicum (CHEM 497) I received hands-on training in Nuclear Magnetic Resonance (NMR) Gas Chromatography-Mass Spectrometry (GC-MS) Inductively Coupled Plasma-Atomic Emission (ICP-AES) and Atomic Absorption Spectroscopy (AAS). My responsibilities included preparing standard calibration solutions programming analytical sequences and analyzing complex datasets to ensure instrument accuracy and reliability. A key focus of my work was understanding ways to optimize analytical methods for chemical identification and quantification. Understanding how each instrument identifies quantifies and characterizes chemical compounds across various sample species is fundamental. NMR spectroscopy provided insight into molecular connectivity by detecting the magnetic environment of specific nuclei. GC-MS separated complex mixtures and identified molecular structures based on retention times and mass-to-charge ratios. ICP-AES and AAS enabled the detection and quantification of elemental compositions with ICP-AES measuring emitted light at characteristic wavelengths and AAS determining metal ion concentrations through absorption spectroscopy. Overall this internship provided a strong premise for a career in analytical chemistry by acquiring the technical expertise and practical experience required to excel in the field.

**Faculty Mentor:** Dr. Samuel Mugo

# Extraction efficiency of microplastics from water sediments based microplastic density and Sizing

**By:** Abdalla Elmanoufi

The production of microplastics (plastics < 5 mm) plays a major role in marine pollution. Many studies have investigated methods to extract microplastics from sediments for analysis although two factors may affect microplastic extraction efficiencies: microplastic size and sediment type. The purpose of this study was to examine each factor individually and determine if one factor limits the extraction efficiency more than the other. To carry out this assessment a known number of four types of fluorescent microplastic beads (30 - 50 beads per type) with varying sizes were spiked onto one of two sediment types: clay or silt. A custom-built microplastic extraction unit was used to carry out the isolation between the microplastics from the sediments using density floatation with potassium carbonate followed by enzyme digestion. Once separated from the sediments the microplastics were collected on polycarbonate filters counted by fluorescent microscopy and the number recovered was compared to the number spiked into each sample to determine extraction efficiency. Three replicate extractions were done for each sediment type using all four microplastic bead types per replicate. It's expected that the microplastic size is primarily responsible for producing a lower extraction efficiency as opposed to the sediment type and it's expected that the extraction from clay sediment will produce a lower extraction efficiency than silty sediment as clay particles are smaller and complicate the isolation from other small microplastics. Moving forward future studies should focus on developing new methods regarding the sizing factor of these microplastics.

**Faculty Mentor:** Dr. Matthew Ross

# Advancing Solubility Sensing and Polymer-Enhanced Detection: Chemistry Practicum with Fourien Inc.

**By:** Naima Faisal Abdalla

The demand for high-sensitivity analytical sensors is growing across industries from pharmaceuticals to environmental monitoring where precise solubility measurements are critical

for optimizing formulations and detecting contaminants. As part of the Chemistry Internship Practicum (CHEM 497) from Jan 2025 to April 2025 I interned at Fourien Inc. I investigated the solubility limits of NaCl KCl and $MgSO_4$ in water using the Quester sensor a high-resolution micro/nano-sensing platform. This research aimed to correlate frequency shifts with solubility thresholds providing insights into ion-solvent interactions. Experimental work included preparing salt solutions measuring frequency responses and determining saturation points for each salt. Beyond solubility studies I explored the potential of enhancing sensor sensitivity by integrating Poly (N-isopropyl acrylamide) (PNIPAM) a thermoresponsive polymer that undergoes coil-to-globule phase transitions.[1] PNIPAM-coated sensors may improve the detection of solute-polymer interactions by leveraging changes in hydration states. The study also examined how ion-specific effects (Hofmeister series) influence polymer behaviour and sensor performance.

[2] This work has broad applications including improving solubility measurements in pharmaceuticals optimizing polymer-based sensing technologies and advancing environmental monitoring. Additionally this internship enhanced my technical expertise in microfluidics instrumentation calibration and data analysis while also refining my collaboration and problem-solving skills. Future directions include optimizing PNIPAM coatings for enhanced sensor selectivity and exploring their role in stimuli-responsive materials. This research contributes to analytical chemistry and materials science bridging academic research with industrial applications.

**Faculty Mentor:** Dr. Samuel Mugo

# Statistical analysis of UV-Spectroscopy methods for Pancreatic Lipase Inhibitors

**By:** Violet Franklin

Obesity is considered an epidemic attracting attention in the field of health sciences due to its health risks and its increasing prevalence in the global population. Pancreatic lipase (PL) is a biological target for reducing calorie absorption and preventing obesity as PL converts extra triglycerides (fats) into monoglycerides and free fatty acids (FFAs) which the body can absorb in the bloodstream. PL inhibitors decrease the amount of triglycerides absorbed by inhibiting their conversion into FFAs and monoglycerides which results in these extra fats being excreted in the stool. Currently there is only one FDA-approved PL inhibitor- Orlistat. Orlistat has some serious side effects therefore

there is a need to find better PL inhibitors. In order to properly assess PL inhibitory activity a robust assay to assess its activity is required. In this study Orlistat will be evaluated for its PL inhibitory activity using two different assay methodologies at different scales to assess accuracy and variance. The inhibitor's activity will be monitored spectroscopically using a standard 2mL UV-vis cuvette and a 96-microwell plate. The cuvette in vitro assay will contain a 20% v/v DMSO in 0.04M $K_2HPO_4$ (pH 8.0) buffer solution whereas the 96-well plate will have a buffer consisting of 50 mM of $Na_3PO_4$ 5 mM of sodium deoxycholate and 20% v/v DMSO (pH=8.0). Both assays will use a 0.1 mM 4-Nitrophenyl palmitate substrate and Orlistat concentrations of 0-100uM which will create the Michaelis Menten T-tests and F-tests will be performed to determine the variability and sensitivity of the methods.

**Faculty Mentor:** Dr. Tina Bott

# Identification of Mesophase Formation for carbon fiber production from Bitumen and Optimization of Aluminum waste hydrolysis setup for Hydrogen gas production: Chemistry Practicum with National Research Canada – CanmetENERGY.

**By:** Jon Paulo Germita

Carbon fibre production from bitumen a valuable product of Alberta's oil sands offers environmental and economic benefits but controlling mesophase formation during production remains inefficient1.

Asphaltene a key component of bitumen forms a rigid and thermally stable polycyclic aromatic structure through pyrolysis forming the mesophase2. National Research Canada – CanmetENERGY (NRC) is optimizing mesophase identification for carbon fiber production to expand bitumen's use beyond light oils and provide an alternative to conventional graphite carbon fiber. Additionally NRC has an ongoing project of exploring aluminum waste hydrolysis to produce $H_2$ gas leveraging low-cost and abundant materials. While the concept is not new developing an optimal model for recycling aluminum waste remains challenging for industries. NRC aims to create a green hydrogen reactor model to recycle aluminum waste and generate alternative energy in the form of $H_2$ gas.

From January to April 2025 as part of the Chemistry Internship Practicum (CHEM 497) I interned at NRC. My role included supporting the mesophase identification research using the Zeiss Axio Z2M Light Microscope and assisting in optimizing the hydrogen production setup for aluminum hydrolysis experiments. This experience exposed me to a professional research environment advanced instrumentation and safety practices in a professional setting.

**Faculty Mentor:** Dr. Samuel Mugo

# Techno-economic Analysis of Cellulose Conversion into Bio-jet Fuels

**By:** Nadien Harb

With growing concerns over environmental sustainability and the depletion of fossil fuel resources the production of viable alternatives has become more urgent especially in the aviation industry. One promising solution is bio-jet fuel derived from renewable biomass particularly Cellulose which can be converted into valuable platform chemicals like 5-hydroxymethylfurfural (HMF) and 5-chloromethylfurfural (CMF). While previous research has explored these conversion processes their economic feasibility and scalability have not been thoroughly examined. This study investigates cellulose conversion into HMF and CMF using a continuous flow reactor system promoting reaction conditions and evaluating solvent recovery to maximize efficiency. A detailed techno-economic analysis including capital expenditures (CAPEX) and operational costs (OPEX) is conducted using financial modelling tools to determine the commercial viability of large-scale bio-jet fuel production. The results will provide valuable insights into the potential for cost-effective and scalable biofuel production supporting the transition toward more sustainable aviation fuels.

**Faculty Mentor:** Dr. Roland Lee

# Identifying Factors that Affect Student Engagement in Chemistry

**By:** Nadien Harb & Hinda Hassan

Success in undergraduate courses depends heavily on student enthusiasm and involvement. Numerous students struggle academically and lose interest in the subject because of reluctance and learned helplessness. This study focuses on the psychological social and institutional elements contributing to undergraduate students' motivation academic achievement and interest in chemistry. By analyzing the students' feedback and personal reasons through surveys and interviews We will conclude academic engagement and performance in chemistry courses by analyzing the perspectives of undergraduate students. By identifying key contributors to reluctance and helplessness this research aims to develop practical interventions to enhance student engagement resilience and overall academic success.

**Faculty Mentor:** Dr. Kaitlyn Towle-Straub

# Sedimentological characteristics of the Altares Member of the Montney Formation: Insights from thin section observations

**By:** Alyssa Kich

The Altares Member of the Lower Triassic Montney Formation consists of a mixed siliciclastic-carbonate interval within the upper portion of the Middle Montney and exhibits complex sedimentological heterogeneity with respect to lithology fabric and cement types which can be observed within core at the laminae- to bed-scale and at a microscopic scale. Describing these subtleties in lithological paleontological and diagenetic characteristics benefit from detailed petrographic descriptions. These small scale fluctuations can provide more detailed interpretations of depositional processes insights on diagenetic history and awareness of factors influencing geomechanical rock properties within the interval. This preliminary study investigates thin sections from the Altares Member within the Pouce Coupe Field from the 06-03-079-13W6 core and describes the distribution of grain size fossils size and abundance and cement type. Within siliciclastic-dominated beds grain size varies from fine- to coarse-grained silt. Different cement types are observed with quartz cement being the most dominant and calcite cement being concentrated within thin isolated beds. Non-ferroan calcite cement is the most common type of calcite cement but ferroan calcite is also observed. Within carbonate-rich intervals shell material associated with the flat clam Claraia are preserved as packstone-grainstone beds which are predominately cemented by non-ferroan calcite and subordinate ferroan calcite. This study describes various thin

sections from a core associated within the most eastern preserved expression of the Altares Member and defines the complex macroscopic to microscopic sedimentological and diagenetic characteristics within mixed siliciclastic-carbonate systems that are commonly overlooked and oversimplified using standard logging core practices.

**Faculty Mentor:** Dr. Carolyn Furlong

## Synthesis of Chloromethyl furfural using a continuous flow separator

**By:** Blake Maday

Energy shortage and pollution have been the major problems threatening the environment. Chloromethyl furfural (CMF) is a biomass platform molecule widely used in biorefining and biomass conversion. The significant material for CMF synthesis is lignocellulose biomass. CMF as a platform can be converted into biofuels chemicals or renewable monomers. The CMF can recycle the lignocellulose biomass and transform it into a value-added product which can resolve the energy shortage crisis and reduce the pressure of landfill pollution. This project looks at using continuous flow separator prototypes that were designed last semester and testing its flow rates at different temperatures pressures and conditions to make these molecules.

**Faculty Mentor:** Dr. Roland Lee

## What Sort of Sloth? Identifying Alberta's Giant Ground Sloth Fossils and Exploring their Significance to Ice Age Canada

**By:** Thomas Makey

Central and Southern Alberta has provided an abundance of Pleistocene vertebrate fossils with a dedicated collection held in the Royal Alberta Museum (RAM). Previous workers in the RAM's collection identified a few bones from extinct Giant Ground Sloths. However there has not been any publication describing the diagnoses of the Sloth material in detail. Seven fossils cataloged in the RAM's Quaternary Palaeontology Collection such as 'Sloth' or 'Edendate' will be reviewed and described to remedy this.

The fossil material includes two limb bones from river bluffs near Medicine Hat one rib portion from Fort Saskatchewan and three limbs and one toe bone from the Edmonton area. All fossils are confidently assigned to the sloth Order Pilosa with several limb bones identified as coming from the browsing Jefferson's Ground Sloth Megalonyx. The fossils from the Edmonton area represent the youngest species M. jeffersonii and were measured to be on the larger end of the genus and the Medicine Hat specimens interpreted as coming from older sediments than the Edmonton and Fort Saskatchewan fossils appear to be smaller supporting a trend of evolving an increase in body size for the Sloth genus. An ArcGIS StoryMap of each Ground Sloth fossil will be shared to better understand faunal dynamics in Pleistocene Canada.

**Faculty Mentor:** Dr. Robin Woywitka

# At-risk paleoclimate archives in Alberta's Rocky Mountains

**By:** Loreena Nieuwenhout

Paleoclimate studies have been performed in Alberta from the 19th century onward and provide insight into ancient climates via proxies. Sediment cores from peatlands such as bogs fens and lakes prove to be a relatively easy source of paleoclimate proxies for collection. Climate change poses a risk to collecting new peat core samples in Alberta's Rocky Mountains with the increased threat of forest fires degrading or destroying areas with good sampling ability largely due to the flammability of peat itself which when ignited can burn underground for long durations and encompass large distances and depths thus altering the paleoclimate record contained within. As such the quality of the sites historically studied may be in danger of being compromised leaving data gleaned from former research to be the only remaining source of information for some areas. The area examined for this research was the Albertan Rocky Mountain range and data was used from an online archival resource "The Lake Files". 60 site entries were examined to determine if the publications listed were readily available online and if any dating of the cores was performed. This study sought to determine what percent of historical publications using paleoclimate proxy samples were still readily available online and what the average age range of samples collected at each site was based on various dating methodologies. This research helps inform future studies on site selection when examining paleoclimates and proxy samples in Alberta's Rocky Mountains.

**Faculty Mentor:** Dr. Robin Woywitka

# Peptide Synthesis

**By:** Maryjane Okwuchukwu, Yuliia Ravlyk, Daniel Ritualo, Juan Sarrosa & Yehia Rahime

Bacterial infections have become increasingly resistant to common antibiotics which has created the need for new antimicrobial therapies. Cancrin is a naturally occurring antimicrobial peptide isolated from Rana cancrivora however it has limited activity against gram-negative bacteria. This presentation will discuss the characterization of cancrin analogues through circular dichroism (CD) spectroscopy to examine secondary structure and nuclear magnetic resonance (NMR) spectroscopy for structural analysis. The biological activity of these analogues will be evaluated to determine their effectiveness against bacterial pathogens. By studying the relationship between peptide structure and antimicrobial function this research contributes to the development of new peptide-based treatments that could help address the growing problem of antibiotic resistance.

**Faculty Mentor:** Dr. Kaitlyn Towle-Straub

# Development and Validation of Acid Hydrolysis method for total fat determination in petfoods: Chemistry Practicum with Champion Petfoods

**By:** Jireh Otanes

Total fat serves as a critical nutritional element influencing the quality palatability and regulatory compliance of pet food products. The diversity of sample matrices–including extruded kibble freeze-dried food and treats–presents specific challenges that require method optimization to ensure consistent results. The Food and Agriculture Organization (FAO) underscores that fats play an essential role in both animal and human nutrition highlighting the need for precise methodologies to address the analytical challenges posed by complex food matrices1.

Acid hydrolysis method involves the breakdown of complex sample matrices to release fats which are then extracted and quantified. Champion Petfoods also provides internal protocols and testing procedures for quality assurance within its Nutritional Laboratory.

These documents which include sample preparation techniques and analytical guidelines serve as the foundation for developing company-specific methods2.

From January to April 2025 during my Chemistry Internship Practicum at Champion Petfoods I optimized fat analysis using the ANKOM HCl Hydrolysis System and ANKOM XT15 Extractor. Acid

hydrolysis breaks down lipid-protein and lipid-carbohydrate interactions enabling efficient fat extraction primarily triacylglycerols quantified by mass loss after solvent extraction.

Beyond method development I gained exposure to various analytical techniques and strengthened my skills in method validation data analysis and GLP adherence. By improving accuracy and efficiency this project enhances regulatory compliance and quality control in pet food manufacturing ensuring consistent and reliable nutritional labeling. The experience deepened my understanding of analytical chemistry in food science preparing me for both research and industry applications.

**Faculty Mentor:** Dr. Samuel Mugo

# Anti microbial activities

**By:** Yehia Rahime, Daniel Ritualo & Juan Sarrosa

Antimicrobial resistance is a major global concern creating an urgent need for new antimicrobial therapies. Peptides are a promising alternative to traditional antibiotics due to their ability to disrupt bacterial membranes non-specifically making resistance less likely. Cancrin is a naturally occurring antimicrobial peptide isolated from Rana cancrivora that displays antimicrobial activity against gram-positive and limited activity against gram-negative bacteria. This presentation will cover the introduction to antimicrobial peptides and the methods used to design and synthesize analogues of Cancrin that may have enhanced antimicrobial activity. By modifying the primary sequence of this antimicrobial peptide the proposed analogues are synthetically more accessible and may show improved antimicrobial activity.

**Faculty Mentor:** Dr. Kaitlyn Towle-Straub

# Modification of primary sequence microbial peptide Cancrin for antimicrobial activity

**By:** Juan Miguel Sarrosa, Yehia Rahime & Daniel Ritualo

Antimicrobial resistance is a major global concern creating an urgent need for new antimicrobial therapies. Peptides are a promising alternative to traditional antibiotics due to their ability to disrupt bacterial membranes non-specifically making resistance less likely. Cancrin is a naturally occurring antimicrobial peptide isolated from Rana cancrivora that displays antimicrobial activity against gram-positive and limited activity against gram-negative bacteria. This presentation will cover the introduction to antimicrobial peptides and the methods used to design and synthesize analogues of Cancrin that may have enhanced antimicrobial activity. By modifying the primary sequence of this antimicrobial peptide the proposed analogues are synthetically more accessible and may show improved antimicrobial activity.

**Faculty Mentor:** Dr. Kaitlyn Towle-Straub

# Organic Synthesis of Silyl Glyoxylates

**By:** Courtney Stefner

Analyzing the biochemical properties of naturally occurring compounds requires significant resource input. This presents a challenge as extracting compounds from natural products can be unsustainable given the amount of material needed for research. Therefore the use of natural molecular compounds as a main source is insufficient. Synthetic routes to compounds provide an alternative method for analysis allowing greater amounts of material to be synthesized in the laboratory.

Silyl glyoxylates are a family of molecular compounds that can be used as reagents in multicomponent reactions to form the molecular backbone of many natural products. This research project explores the stepwise organic synthesis of silyl glyoxylates in which the product was achieved over a series of four steps. Spectroscopic data was used to confirm the structure of the compound as well as the intermediate products. Details of the stepwise procedures and the future possibilities of silyl glyoxylates playing a nucleophilic role in various chemical reactions will be discussed.

**Faculty Mentor:** Dr. Tina Bott

# Quantification of alpha-amylase in human saliva using cyclic voltammetry with screen-printed carbon electrodes (SPCEs)

**By:** Rina Tran

Stress can lead to many health problems. Therefore it is important to monitor one's stress level for early treatment. Salivary alpha-amylase (SAA) can be a marker for stress as it is suggested to be positively correlated to catecholamines. This study introduces a method for measuring the concentration of SAA in human saliva using screen-printed carbon electrodes (SPCEs). The approach involves indirect measurement through a series of chemical reactions: salivary alpha-amylase hydrolyzes starch to maltose which facilitates the reduction of $[Fe(CN)6]3-$ to $[Fe(CN)6]4-$. Parameters such as pH reaction time salivary alpha-amylase volume and starch concentration were optimized. Furthermore a saliva sample from a female participant is measured to validate the method and demonstrate simplicity cost-effectiveness portability and suitability for rapid point-of-care testing.

The external standard calibration plots of SAA yielded linearity with R values of 0.93 and 0.98 for the anodic and cathodic average delta peak capacitance without extra potassium phosphate buffer and R values of 0.94 and 0.98 with extra potassium phosphate buffer in the standard solutions. The cathodic peak produced greater linearity and the buffer did not significantly change the linearity. From the standard addition calibration plots the concentrations of SAA in human saliva were -3.70 units/mg for anodic and 44.71 units/mg for cathodic delta peak. Maltose is made up of glucose; therefore glucose in saliva can act as an interference to increase the current signals. The SPECs are sensitive to glucose with high slope values of -20.047 for the anodic peak and -11.242 for the cathodic peak.

**Faculty Mentor:** Dr. Samuel Mugo

# Characterization of microplastics in roadside snowbanks

**By:** Robyn Woodrow

This study aims to investigate the occurrence composition and spatial trends of microplastic contamination in roadside snowbanks during the winter season. Snow

samples were collected at nine different locations (three residential three connector roads and three major roads) throughout Edmonton.. There is currently no established methodology for analyzing tire wear particles as they present unique analytical challenges not typically encountered in microplastics analysis. Thus initial work will develop the necessary techniques to analyze and characterize roadside microplastics by integrating scanning electron microscopy (SEM) to study the morphology and microstructural aspects of the extracted particles and Energy Dispersive X-ray spectroscopy (EDX) to identify the trace metals present specifically in tire wear particles. Samples will be extracted using techniques developed by Dr. Ross and students and plastic quantities size composition and morphologies will be determined using microscopy SEM and EDX and Raman spectroscopy (Bujaczek et al. 2021; Ross et al. 2023).

Results will contribute to the understanding of the types and quantities of microplastics that accumulate in snow banks during the winter provide a greater understanding of the quantity of microplastics released during snowmelt and which traffic-related processes can be attributed to the production of these particles alongside different road types. This study is to the best of our knowledge the first investigation into roadside snowbank accumulation of microplastics within Canada and these findings may provide evidence for the implementation of measures for the treatment of snowmelt and runoff to mitigate the impact of meltwater runoff entering Edmonton's water bodies.

**Faculty Mentor:** Dr. Matthew Ross

# Combating Antibiotic Resistance with Silver-Coated Bandages: Insights from a Chemistry Internship at Exciton Technologies Inc.

**By:** Layal Zidan

Antibiotic resistance and the prevalence of superbugs pose a significant global threat complicating the treatment of common infections and necessitating innovative solutions1. Exciton Technologies Inc. a research and manufacturing company addresses this challenge by utilizing high oxidation state silver-coated bandages which reduce the risk of resistance through a multifaceted mechanism of action.

As part of the Chemistry Internship Practicum (CHEM 497) from January to April 2025 I gained hands-on experience as a Quality Control Analyst at Exciton Technologies. My

role involved performing standard laboratory procedures following strict SOPs analyzing samples documenting results and ensuring lab cleanliness and safety. Additionally I developed technical skills such as calibrating and troubleshooting lab instruments performing analytical tests maintaining control charts and adhering to good documentation practices.

This experience also strengthened my professional skills including time management teamwork communication and organization. Working in a cGMP lab environment provided exposure to real-world quality control processes and industry standards enabling me to connect academic concepts with practical applications. Observing and collaborating with professionals in the field further enhanced my understanding of the critical role of quality control in combating antibiotic resistance and advancing healthcare solutions.

1. World Health Organization https://www.who.int/news-room/fact-sheets/detail/antimicrobial-resistance (accessed Jan 20 2025)

**Faculty Mentor:** Dr. Samuel Mugo

# Improving the Quantification and Characterization of Microplastics in Urban Wastewater Treatment Plants Effluent Utilizing 13mm Mesh and Raman Spectroscopy

**By:** Layal Zidan

Microplastics (particles smaller than 5mm) are a growing environmental concern, with wastewater treatment plants (WWTPs) acting as a major pathway for microplastics entering freshwater systems. Although current detection methods are effective, improving the throughput of analysis for more routine monitoring remains a key goal. Previous work evaluated particle collection efficiency using a 13 mm stainless steel filter, achieving 80s–90s % recoveries, depending on particle size. To further validate the method, this study further tested it by utilizing a polycarbonate membrane filter and performing extractions of 4 L samples containing a known number of a broader range of microplastic types varying in size, density, morphology, and polymer composition. Once recoveries in the 80s–90s % range were achieved, the methodology was applied to

three sets of wastewater effluent samples collected from Calgary's Bonnybrook Wastewater Treatment Plant station, with volumes of 20 L, 10 L, and 6 L, respectively. Each set required adjustments to the procedure, including chemical digestion steps and the use of a filter cartridge to enhance microplastic extraction. By spiking the samples and conducting multiple tests, we ensured all particles were captured and obtained on the smaller diameter filter, minimizing particle loss and improving data representation. This work has refined a method that enables a more comprehensive analysis of microplastics in WWTP effluent, which will aid in advancing our understanding of their role in microplastic pollution and informing wastewater treatment policies. Future work can focus on further refining the method and testing additional modifications to enhance efficiency.

**Faculty Mentor:** Dr. Matthew Ross

## Psychology

# Parasocial Relationships and Political Engagement on Social Media

**By:** Manar Al Ghamdi

Social media has become a widespread activity that anyone can participate in. Because of its free and accessible nature, it has the influence to shape political engagement. Previous research has explored social media's role in political engagement, but there remains a gap in understanding how parasocial bonds with online figures affect people's politics. Because of the perceived personalized nature of online interactions, these influencers often have smaller, more dedicated followings, allowing them to communicate and connect more personally with their audience, creating the possibility for particularly strong political influence.

In this study, we aimed to explore whether the strength of a parasocial relationship (PSR), a one-sided bond with microcelebrities and other social media figures, influences political persuasion, expression, and participation. Participants completed the Parasocial Relationship in Social Media questionnaire, which is designed to measure the strength of these perceived one-sided relationships with figures on social media. Participants then answered questions about their political engagement (persuasion, expression, and participation) in relation to the chosen PSR figure.

Our findings revealed that the strength of a PSR influenced all forms of political engagement: persuasion, expression, and participation. Political expression showed the strongest association, as individuals actively shared opinions and engaged in discussions inspired by their chosen figures. While PSRs also influenced political persuasion and participation, these effects were notable but not as pronounced as the impact on political expression. Overall, this study suggests that a PSR may influence political engagement and could help guide future research on how online figures shape political behaviour.

**Faculty Mentor:** Dr. Craig Blatz

# Narcissists' Reactions to Stereotype Threat

**By:** Anika Anderson

Narcissism is a multifaceted personality trait that can influence how people react when their ego is threatened. Those high in narcissistic rivalry are more defensive and combative individuals high in narcissistic admiration are less likely to engage in conflict and individuals high in vulnerable narcissism ruminate over criticism. Narcissism can help protect narcissists' self-esteem by downplaying threats to their high self-image. Additionally when narcissists get a chance to show off their grandiose traits they may work even harder to tackle those perceived threats. In the current study we explore narcissists' reactions to stereotype threats which can lead to decreased performance when worrying about confirming a stereotype. In Study 1 (N = 127) female participants read an article about gendered language (e.g. "girlboss") which acted as a stereotype threat by highlighting the belief that men are seen as more competent leaders than women. They then completed a word search containing both agentic and communal words. In Study 2 (N= 380) female participants were exposed to a stereotype threat stating that men perform better on the upcoming mental rotation test. They were also allowed to publish their scores on a perceived public leaderboard. In Study 1 we found that narcissism did not predict finding more agentic or communal words after stereotype threat. Although stereotype threat did not impact individuals' performance in Study 2 those high in rivalry performed worse on the test when told they had the opportunity to self-enhance. More research is needed to explore how narcissism impacts stereotype threat.

**Faculty Mentor:** Dr. Miranda Giacomin

# The Impact of Age and Intruders on Shoaling Behaviour: Finding a Group-Intruder Paradigm in Zebrafish

**By:** Siddharth Annadurai & Matthew Harper

Zebrafish (Danio rerio) are a popular model organism to examine many neurological and neuropsychiatric conditions. When investigating fish behaviour, it is important to determine a relationship between social dynamics and age. There are many tests to assess social dynamics in zebrafish, including open field, light/dark test, group shoaling test, novel tank dive test, and each have their own strengths and weaknesses. Until now, the 'group-intruder paradigm' is a popular test in rodents but not well studied in zebrafish. In this study, we tested how a shoal of zebrafish (2 male, 2 female) would interact with an 'intruder' fish from another tank that was the same age, 8 months older, or 8 months younger than the shoal. We used motion-tracking software to quantify distance moved, inter-individual distance (IID), velocity, body contact, no body contact, mobility, and zone duration before and after the introduction of the intruder. We found that there was no effect of the intruder on the behaviour of zebrafish at any age. These results indicate that zebrafish age and the introduction of an intruder do not impact how zebrafish behave with one another. Further research with different ages of shoals and intruders is needed to investigate the usefulness of this paradigm in behavioural research.

**Faculty Mentor:** Dr. Trevor J. Hamiton

# Visually Guided Reaching in Patients with Spatial Neglect

**By:** Olad Ayodeji

Spatial neglect (SN) is a neurological condition in which patients have difficulty attending to the left side of space following right hemisphere brain damage. Patients with SN are significantly impaired at activities of daily living and a diagnosis of neglect is associated with a poorer functional recovery. There is ongoing debate about whether patients with SN have visuomotor deficits – such as problems with reaching and grasping – and whether these deficits are specifically tied to the diagnosis of neglect or merely to the extent of damage to the visuomotor control network irrespective of the

diagnosis of SN. While evidence suggests that right hemisphere damage may impair visuomotor performance the exact location of the lesions related to these deficits is also not well understood. The proposed study will investigate the presence of visuomotor deficits in a large group of right hemisphere stroke patients (n=162) with and without SN compared to healthy controls (n=204). These data were obtained from a previous study in which patients and controls completed a visually guided reaching task using the Kinarm Exoskeleton (kinarm.com). These data will allow us to examine movement initiation speed execution speed path curvature and velocity. If visuomotor deficits are associated with neglect then patients with SN should perform more poorly than patients without SN as well as controls on the visually guided reaching task. In addition a lesion analysis will allow us to determine which specific brain regions are associated with these visuomotor control deficits.

**Faculty Mentor:** Dr. Chris Striemer

# Evaluating the Efficacy of the AIM Curriculum with Elementary School Students.

**By:** Braedin Bauer

The present study will investigate the efficacy of a shortened version of the Accept-Identify-Move (AIM) curriculum: an evidence-based curriculum designed to help children develop social and emotional coping skills. The goal of AIM is to increase children's psychological flexibility which can be defined as one's capacity for being in contact with the present and acting on long-term goals rather than short-term urges. The curriculum utilizes Acceptance and Commitment Therapy (ACT) mindfulness and the science of applied behavioural analysis to support children's social and emotional development with the intention of aligning their thoughts emotions and behaviours with their goals and values. The researchers will attempt to provide support for the AIM curriculum and its use in the classrooms of elementary schools by studying its effectiveness using a small sample of Canadian elementary school students who have not been clinically diagnosed with any psychological disorders. The study will measure the students' level of mindfulness and psychological flexibility to see what impact the AIM curriculum has on developing and increasing these factors. The study will also record behaviours chosen by the participants that they feel are getting in the way of them achieving their goals and living a life aligned with their values. We will provide AIM curriculum lessons in the classroom one day a week for 10 weeks. We hypothesize that a selection of lessons from the AIM curriculum will increase mindfulness and

psychological flexibility and decrease the frequency and/or severity of problem behaviours in participants.

**Faculty Mentors:** Dr. Miranda Macauley & Dr. Sean Rogers

# Materialism and Risk-taking Behavior

**By:** Daniel Beljan

A poster outlining how the study was developed broad details of what the study will entail what is hypothesized to be observed and how the potential observations relate to different areas of study and practical understanding.

**Faculty Mentor:** Dr. David Watson

# A Timeline Inquiry into an Eating Disorder Misdiagnosis

**By:** Joshua Bell & Bell & Sarah Logan

Mental disorders like eating disorders have risen significantly during and proceeding the COVID-19 pandemic with hospitalization rates prevalence rates and incidence rates all increasing. With that there remains a wider error for misjudgments or inaccurate diagnoses. This study focuses on one (1) participant and her journey with a gastrointestinal illness that was originally diagnosed as an eating disorder during her adolescence. We created a modified methodology a timeline inquiry to fully explore the narratives of her lived experience. The inquiry bases itself upon a qualitative case study design which integrates timeline methodology (interpretive description) narrative inquiry and collaborative ethnography to create a form of action research emphasizing participant reflection. Using a timeline that she drew we facilitated a series of semi-structured interviews as we explored the events and other relevant topics that contributed to her eating disorder journey. Things like sexual experiences and abuse history traumatic vehicle accidents continuous hospital visits and other sociocultural factors led to the development and continuance of a real chronic eating disorder. The timeline inquiry looked at what affected the participant the most leading to the capture of her complex patient experience and other overlooked factors.

**Faculty Mentor:** Dr. Bruce Thomson

# Mindfulness Parenting Stress and Parental Responsiveness

**By:** Samraggee Bhattacharya

Mindfulness is the state of being mentally and physically present during a situation and having complete awareness of that moment. Jon Kabat Zinn an American professor was the first one to take up a scientific-based approach on mindfulness but this concept has been present for a very long time across many cultures and promoted in various religions like Buddhism. Mindfulness helps one regulate their emotions and thoughts and respond to a particular situation appropriately. Most importantly if one wants to cultivate this behaviour from childhood then parents must practice the art of mindfulness. Therefore there has been a recent increase in a new style of parenting that promotes a positive relationship between the child and the parent. The core aspect of mindful parenting is being proactive and monitoring the short term and long-term needs of children and adolescents. This paper will review how positive childhood environments lead to the development of positive life outcomes. Positive parenting has already been proposed as a key environmental component that has a significant impact on a child's development. Early on supportive parenting is very important as it has been demonstrated to have beneficial effects on behavioural and psychological development of the brain. Mindful parenting has also shown to be effective in the reduction of stress. Furthermore the paper will conclude with how mindfulness parenting interventions can substantially help to improve parent – child relationships. Keywords: mindfulness psychological development positive parenting

**Faculty Mentor:** Dr. Rhonda Fischer

# The Closer the Better: Reward Processing is Enhanced for Near Items

**By:** Aaron Bishop

Do we evaluate rewards differently due to their perceived physical proximity to us? In other words are close rewards better than distant rewards? To investigate this we recorded electroencephalography (EEG) while participants received rewards after responding to stimuli presented at "near" and "far" distances in a forced choice task

design. We then examined the effect of distance (near/far) on the reward positivity (RewP) a neural measure of reward processing. Pilot data suggests that rewards related to distally close stimuli elicit enhanced reward processing compared to a "far" condition as indexed by the amplitude of the RewP. This shows that proximity impacts the neural evaluation of rewards and points to the importance of considering real-world factors (such as physical distance) when studying reward processing in the lab.

**Faculty Mentor:** Dr. Cameron Hassall

# Exploring the self-structure of individuals higher in narcissism

**By:** Kaiden Blakley

Narcissism is a multifaceted personality trait. Some individuals are higher in grandiose narcissism demonstrating dominance entitlement and deceitfulness. Others are higher in vulnerable narcissism demonstrating higher neuroticism rumination and reliance on others for recognition. The self-content of narcissists (e.g. the qualities and traits they possess) is well understood but less is known about their self-structure (e.g. how organized and stable their self-views are). Self-structure includes self-concept clarity (SCC; how confident stable and consistent one is) and self-concept differentiation (SCD; how much one's self-views vary across roles). A stable and clearly defined self consistently predicts higher well-being and relationship satisfaction. One's self-concept closely relates to identity where consolidated identity refers to certainty and connection to oneself and a disturbed identity refers to fragmentation and identity confusion. The goal of our study was to examine the self-concepts and identities of those higher (vs. lower) in grandiose and vulnerable narcissism. We hypothesized that individuals higher in grandiose narcissism have higher SCC and more consolidated identities whereas individuals higher in vulnerable narcissism have higher SCD and more disturbed identities. To examine this we recruited 300 participants and administered measures of narcissism SCC SCD and identity.This study aims to further understand the profiles of individuals higher (vs. lower) in narcissism and how their self-conceptualization may contribute to maladjustment and interpersonal conflict.

**Faculty Mentor:** Dr. Miranda Giacomin

# Does knowledge of dementia stigma beliefs and the presence of ageist beliefs influence nurses' distress when encountering dementia-related behaviours?

**By:** Claire Brubaker

Persons with dementia (PwD) are unfortunately likely to encounter structural stigma a form of stigma first proposed by Goffman (1963) which can manifest as poor quality of health care. Quality of care can be influenced by nurses' attitudes towards PwD and their knowledge of dementia (Yaghmour 2021; Strøm et al. 2019). The behavioural and psychological symptoms of dementia (BPSD) including wandering agitation aggression and disinhibition add further complexities to dementia nursing care and are often associated with considerable distress in nurses (Hessler et al 2018; Keuning-Plantinga 2020). There has been little research conducted regarding stigma that nurses may have in caring for PwD. Our REB approved study seeks to elucidate which BPSD nurses find most distressing and how stigma ageist attitudes and knowledge about dementia may influence the distress experienced by nurses working with PwD. Data is currently being collected from a sample of nurses (RNs RPNs LPNs) working in a geriatric psychiatric care facility. In an online survey participants were given eight vignettes of PwD displaying different dementia related behaviours. They were asked to rate on a scale of one to four how distressed they would be when encountering each behaviour. Participants will also complete the Fraboni Scale of Ageism (Fraboni et al. 1990) the Dementia Public Stigma Scale (Eccleston et al. 2021) and the Dementia Knowledge Assessment Scale (Annear et al. 2015). This study aims to provide valuable insights to improve nursing practice and enhance dementia care.

**Faculty Mentors:** Dr. Lori Harper & Dr. Alexander Penney

# Understanding Community Notifications for High-Risk Offenders in Canada: A Comparative Analysis

**By:** Tazveer Chauhan

Community notifications are an important tool for public safety informing communities about the release of high-risk offenders. In Canada these notifications are issued

selectively under Section 810 of the Criminal Code based on risk assessments conducted by correctional staff. Our study explores the content and structure of community notifications in Canada focusing on how they vary between sexual and non-sexual offenders and between child sexual offenders and non-child sexual offenders. Using a dataset of 136 notifications from across Canadian provinces and territories the study examined variables such as offender demographics risk information and notification details. We found that notifications for sexual offenders are more likely to include details about groups at risk such as children or other vulnerable populations but little difference exists between the information provided for child and non-child sexual offenders. Results revealed that notifications for sexual offenders were significantly more likely to identify groups at greater risk of harm such as children compared to those for non-sexual offenders. However there were no significant differences in the level of detail provided between child and non-child sexual offenders. These findings suggest that while standardized notifications may ensure fairness they often oversimplify complex offender risk profiles leading to public misperceptions and increased stigma.

**Faculty Mentor:** Dr. Sandy Jung

# Predictors of Dance Skill: The Role of Motivational Climate, Adaptive Perfectionism, and Grit

**By:** Mackenzie Christensen

Although dance is a popular extracurricular activity among children and adolescents, little research has examined factors that contribute to their dance success. We plan to examine three factors, commonly used in academics and sport, to predict dance skill: 1) the perceived motivational climate, created by instructors, where a task-involved motivational climate created focuses on self-improvement, learning, and task-mastery, and an ego-involved motivational climate places emphasis on competition, social comparison, and unacceptability of mistakes, 2) adaptive and maladaptive perfectionism, conceptualized as setting high goals, working hard, and holding oneself to a high standard (compared to maladaptive perfectionism, which involves excessive concerns over mistakes and often leads to low self-worth), and 3) grit - the passion and perseverance for long-term goals. We hypothesize that a task-involved motivational climate will be associated with both adaptive perfectionism and grit amongst teen dancers, which will in turn be associated with their skill levels. To answer our research question, adolescent ballet, hip-hop, and contemporary dancers will complete

questionnaires on the perceived motivational climate of their dance studio, adaptive and maladaptive perfectionism, and grit, and they will submit a recording of themselves performing a researcher-selected dance routine. Expert rafters will then score the dancers' performance using an established rubric. This study will contribute to existing literature on the predictors of dance skill and has the potential to help dancers improve their performance.

**Faculty Mentors:** Dr. Kathleen Corrigall & Dr. Tara Vongpaisal

# No Pride in Control: Identifying Harmful Patterns to Build Safer Queer Relationships

**By:** Dakota Dickinson

White cis-heteronomative hegemonic discourse shapes much of intimate partner violence (IPV) research which can result in narratives overlooking queer experiences of IPV. Queer individuals may experience unique coercive controlling behaviours from an intimate partner such as the threat of revealing someone's sexual orientation or gender identity to others in order to manipulate or control. However research suggests that while queer individuals may experience coercive controlling behaviours there may be a disconnect between these experiences and categorizing them as forms of abuse. This research aims to better understand experiences of coercive control from a MacEwan University undergraduate sample (n=750). While coercive control in relationships is a significant concern for both queer and non-queer populations queer individuals may experience and conceptualize coercive control in ways that are unique to their sexual and gender identities. Specifically this research will explore the lived experiences of individuals across sexual identities with a focus on experiential comparisons within the queer community. The proposed research involves evaluation of participants' experiences and perceived feelings of safety about coercive control across several standardized measures. Step-wise regression analysis shows that there is a strong positive correlation between feelings of safety/fear in relationships and various forms of coercive control specifically isolation denial of abuse intimidation and threats. Solutions to IPV should prioritize how individuals conceptualize IPV including coercive control to ensure the development of healthy relationships to break the cycle of violence and focus on queer individuals' ability to thrive.

**Faculty Mentors:** Dr. Laura Offrey & Dr. Kristine Peace

# Blinded by Belief Bias: Can Our Beliefs Affect Our Detection of AI-Generated images

**By:** Lindsay Downs

This study explores if the accuracy reaction time and confidence of AI-generated image detection is effected by belief biases. Subjects were presented with multiple real and AI image stimuli with polarizing topics that positioned that topic in a negative or positive light (i.e. an image showcasing Donald Trump in a positive light(pro-Trump) and a foil image showing him in a negative light (anti-Trump). For each image subjects were tasked with deciding which images were real or AI and how confident they felt about their answers. Results showed that belief biases did not effect ai-generated images but they did for real images (in both accuracy and reaction time). We assume thus that people utilize their visual ability to assess if an image is real or AI and these belief biases do not have an effect on AI images. Further studies could explore if the difficulty of ai-generated images changes the effects of belief biases; since our study utilized medium-difficulty images we hypothesize with the advancement of technology that to the naked eye AI images may be indistinguishable to real images which may be when belief biases play a larger role in believability.

**Faculty Mentor:** Dr. Michelle Jarick

# Locking Eyes Unlocking Memory: Examining the Influence of Eye Gaze on Memory

**By:** Garth Dyer

Context-dependent and state-dependent memory are well-established psychological phenomena in which external contexts (e.g., environment) and internal states (e.g., emotion) become associated with encoded memories and later serve as retrieval cues. Eye gaze is a powerful environmental social cue known to influence emotion, attention, and memory, but whether it serves as a context- or state-dependent memory cue remains unclear. This study investigated these possibilities across two recognition experiments and examined whether individual differences in gaze anxiety moderate these effects. In Experiment 1, participant dyads completed a recognition memory task in which gaze direction (direct, averted, or no gaze) was either matched or mismatched between encoding and retrieval. Results revealed no interaction between encoding and retrieval gaze, but both exerted significant independent effects on recognition accuracy,

with direct gaze at encoding yielding the highest performance. Experiment 2 tested whether eye gaze could act as an affective state cue by pairing encoding gaze with emotionally valenced words. Although word valence and encoding gaze both exerted significant independent effects, with direct gaze yielding the highest performance, especially for negative words, no significant interaction emerged between gaze and valence. Notably, the effect of valence (with better recall for negative words) may have produced ceiling effects that overshadowed other patterns. Gaze anxiety did not significantly moderate recognition memory, but high-anxiety individuals consistently outperformed low-anxiety individuals, a noteworthy and unexpected finding warranting further exploration. Together, these findings suggest that eye gaze influences memory primarily through consistent encoding effects and secondarily through slight but significant retrieval effects rather than state- or context-dependent mechanisms.

**Faculty Mentor:** Dr. Michelle Jarick

# How do Culture and Sex Education relate to Consent Perceptions and Communication? A Cross-Cultural Student Survey

**By:** Nassreen Fayad

This study investigates how ethnic background and sex education influence sexual consent perceptions communication styles and rape myth endorsement. Building on Social Learning Theory (Bandura 1977) we explore how cultural norms and exposure to Comprehensive Sex Education (CSE) shape consent beliefs. Prior research suggests that cultural taboos and limited access to CSE in some regions can reinforce consent misconceptions reliance on nonverbal cues and higher rape myth acceptance (Kumar & Chandran 2020; Oraby 2024). By comparing domestic and international students at MacEwan University and the University of Alberta this research aims to highlight differences in consent beliefs and communication styles across culturally diverse backgrounds. Data will be collected via a Qualtrics-based survey measuring demographic information sex education exposure consent communication styles rape myth acceptance and consent judgments. Participants will evaluate consent scenarios involving varied power dynamics intoxication levels and relationship contexts. Multiple regression and mediation analyses will be used to explore relationships among education knowledge and consent beliefs providing valuable insights for developing

culturally sensitive sex education and improving consent understanding in multicultural settings.

**Faculty Mentor:** Dr. Aimee Skye

# Does the Place that Dementia Related Behaviour Occur (private vs public) Increase Distress in Canadian Undergraduates?

**By:** Merranda Felker

Alzheimer's dementia is a prevalent disease characterized by neurocognitive deterioration resulting in behavioral emotional and cognitive changes that manifest and worsen as the disease progresses to its later stages. While research on stigma as it affects people living with dementia is not yet considered extensive recent stigma research has shown that public stigma structural stigma and self-stigma are common all of which have unique impacts on the person and family of the person living with dementia (Bacsu et al. 2024; Werner et al. 2021; Nguyen & Li 2020). Specific behaviors associated with dementia have been widely studied; however the settings in which these behaviors occur and how they impact a bystander's feelings or stigma towards the person living with dementia have not been studied. This study examined University students' (n=275) self-reported feelings of distress after reading about hypothetical behaviors they might witness in a public and private setting. The results show that six of the eight behaviors were considered more distressing if witnessed in a public setting compared to a private setting. Some of the most distressing behaviors include disinhibition resulting in inappropriate statements to family or strangers verbal aggression poor hygiene and physical aggression. Additionally students were asked to complete a series of questionnaires to measure ageism knowledge of dementia and stigma towards people with dementia as well as a personality questionnaire. By identifying key features of stigma surrounding people living with dementia such as where stigma is likely to occur effective stigma-reducing initiatives can be developed.

**Faculty Mentors:** Dr. Lori Harper & Dr. Russ Powell

# Cognitive Load in Virtual Environments: Object Crowdedness and Field of View

**By:** Madylin Gillett

This study investigated how field of view (FOV) and object crowdedness influence spatial learning and cognitive load in desktop-based virtual environments. A total of 101 participants completed a virtual house search task under different FOV conditions (30°, 60°, 90°) and levels of object crowdedness (low vs. high). After searching for target objects, participants completed spatial memory assessments and rated their cognitive load. Wider FOVs led to faster navigation times and lower self-reported cognitive load, confirming previous research that suggests increased efficiency with wider visual access. High crowdedness (vs. low) increased task duration but did not significantly affect spatial learning accuracy. Notably, spatial learning was more accurate in crowded environments. A significant interaction between FOV and crowdedness was found on the PAAS cognitive load scale, with a narrower FOV and clutter resulting in increased cognitive load; this effect was not present on the NASA-TLX. These findings offer insight into how perceptual constraints and environmental complexity shape spatial learning and attentional processes in virtual settings. The results have practical implications for the design of virtual environments, including user interfaces, educational tools, and navigation systems that aim to balance performance demands with cognitive load.

**Faculty Mentor:** Dr. Eric Legge

# The Impact of Feedback Modality on Reward Processing

**By:** Jared Girard

Naturalistic stimuli tend to be multi-sensory yet the effects of various sensory modalities on reward processing remain largely unknown. This study aims to assess the significance of different feedback modalities (auditory visual and audiovisual) on the reward positivity (RewP) a neural index of reward processing measured using EEG (electroencephalography). Participants completed three versions of the "doors" task a standard two-choice reward task. Rewards were either visual auditory or audio-visual. Pilot data suggests that audio-visual feedback occurs faster compared to either audio or visual feedback alone and is potentially related to underlying cognitive processes linked to multi-sensory integration. These findings could have important implications for

understanding reward processing and how the brain integrates multi-sensory real-world feedback.

**Faculty Mentor:** Dr. Cameron Hassall

# Assessing Bias: The Ontario Domestic Assault Risk Assessment Tool and Indigenous Offenders

**By:** Britni Gorman

The Ontario Domestic Assault Risk Assessment (ODARA) was developed to assess offenders for their risk to commit further intimate partner violence (IPV). However, little is known about the applicability of the ODARA to Indigenous populations. The current study examined whether the ODARA is equally effective in predicting general, violent, and IPV reoffending among Indigenous and non-Indigenous offenders. Archival data from 360 IPV cases reported to the Edmonton Police Service in 2018 were analyzed. Our findings revealed that the ODARA demonstrated greater predictive accuracy for non-Indigenous offenders for all reoffending outcomes, although this difference was not statistically significant. Although effect sizes were smaller for the Indigenous group, our results support the use of the ODARA with Indigenous IPV perpetrators. However, future research is needed to further evaluate its accuracy and ensure it performs equally well across populations. Developing localized ODARA norms could enhance its application and contribute to more equitable outcomes in IPV risk assessment.

**Faculty Mentor:** Dr. Sandy Jung

# Behavioral Effects of Acute Nepicastat Administration in Larval Zebrafish

**By:** Ahanavi Habib-Mohammed

Nepicastat (NEP) is a competitive inhibitor of dopamine β-hydroxylase (DBH) - the enzyme that converts norepinephrine to dopamine. Like another popular DBH inhibitor disulfiram nepicastat has potential as a therapeutic intervention for substance use disorder. Zebrafish are an increasingly popular model for studying drug action but so far no studies have been published investigating the effects of nepicastat on zebrafish. This study examines the effects of an acute administration of nepicastat (250 - 1000 nM) on

larval zebrafish (5 dpf) on startle response and time spent in the outer zone of the arena. Using the DanioVision system and Ethovision XT software for video tracking we analyzed baseline movement and startle responses after the manipulation of light and mechanical tapping stimulation.

**Faculty Mentor:** Dr. Trevor Hamilton

# Choose Your Own Adventure (and Rewards): The Relationship Between Narrative Reward and Memory

**By:** Stacey-Jane Harris

Narrative structure is notable for improving memory. However little is known of its effect on reward processing as previous reward studies have not included narrative features. The current study investigates how narrative influences reward processing using electroencephalography (EEG) to measure the reward positivity (RewP) a neural measure of reward processing. In the 'narrative' condition participants will encounter items within a story decide to engage or disengage with each item and receive randomized feedback. In the non-narrative condition they will make similar decisions but without the broader context of a narrative. In a final memory test participants must identify whether a presented item is familiar (i.e. it appeared earlier in the experiment) or novel. Due to enhanced motivation and depth of processing we expect participants to have an enhanced RewP during narrative trials over non-narrative trials. We also expect participants to have enhanced memory for items encountered during narrative trials as found in previous studies.

This study aims to deepen our understanding of the practical implications of narrative and how it influences our reward processing.

**Faculty Mentor:** Dr. Cameron Hassall

# A is Not for Ally: Identifying Risk and Protective Factors Impacting Asexual Identity Erasure and Mental Health Outcomes

**By:** Samantha Helgeson

Sexual minorities are disproportionately affected by negative mental health outcomes compared to their heterosexual counterparts. Individuals who identify as asexual are subject to significant experiences of erasure marginalization and violence particularly those in higher education settings. Researchers acknowledge that asexuality is an under-studied and erased sexual identity and have noted that experiences of identity erasure are perpetuated by social norms limited visibility given to asexual people misinformation as well as the pathologizing of asexuality. Despite consensus in the literature that asexuality research is lacking few take the time to explore the experiences of asexual people particularly the factors that impact their sense of identity in relation to mental health. The present study will promote the visibility of asexual people by exploring protective and risk factors of identity erasure. Participants will complete a self-report questionnaire designed to gauge their feelings and attitudes regarding their sense of belonging and identification within the asexual community their experiences of asexual identity erasure and factors that worsen or mitigate identity erasure. The primary goal of this study is to promote the visibility of asexual identities by establishing factors that impact erasure and exploring how these relate to mental health outcomes aiming to provide clearer insight into the psychological well-being of individuals within the asexual community. Not only will this study address a significant gap in the literature but the information gathered will be crucial to informing efforts to support and improve the well-being of individuals from the asexual community.

**Faculty Mentor:** Dr. Laura Offrey

# Application of ACT Therapy in Athletes: Self-Identity Leading to Depression and Anxiety After Injury

**By:** Katherine Hudec

Research indicates that athletes dealing with career-halting injuries can struggle with re-injury anxiety and may experience other emotional responses such as depression. While physical rehabilitation is commonly emphasized in recovery there is less focus on

addressing the psychological aspects of healing. Therapies aimed at mental recovery such as cognitive therapies can complement physical treatments but the majority of attention remains on physical recovery. Research by Gledhill et al. (2024) highlights the need for interdisciplinary collaboration to further address these challenges. And while some studies have explored the behavioral aspects of Cognitive Behavioral Therapy (CBT) such as relaxation techniques and guided exposure imagery there is limited research on the use of Acceptance and Commitment Therapy (ACT) for injured athletes. This poster explores how the six core processes of ACT can assist athletes in navigating the challenges of self-identity and re-aligning their values and helping them to build a rich and meaningful life beyond career-ending injuries.

**Faculty Mentor:** Dr. Miranda Macauley

# EEG Measures of Executive Control During "Automatic" Reach Corrections.

**By:** Avery Hudson

Previous research has identified the "automatic pilot', a phenomenon in which the visuomotor system makes rapid corrections to reaching movements in response to changes in target position. Recent research has demonstrated that the extent to which a person can inhibit the automatic pilot is related to individual differences in executive function, which is the ability to regulate one's behaviour in different contexts. The N2 and the P3 are event-related potentials (ERPs) of the EEG that are thought to be related to cognitive control. Specifically, the N2 may reflect response cognitive control and conflict monitoring, while the P3 may index context updating. In the current study, we recorded EEG while participants (n=34) completed an automatic pilot reaching task in which they were instructed to either correct or not correct their movements to target jumps. Initially, we hypothesized that the N2 and the P3 would be larger during trials in which participants were told not to correct (i.e., inhibit) their movement to the target jump. However, our results indicated the exact opposite of what we predicted. That is, the N2 and P3 were larger in trials where participants were told to correct their movement to the target jump. One potential explanation for these findings is that when participants were instructed to correct their movements towards a target jump, they first had to inhibit their prepotent response to the initial target location – which could result in larger N2 and P3 – compared to trials where they were told not to correct their movement. These findings challenge conventional interpretations of the mechanisms underlying the "automatic pilot."

**Faculty Mentors:** Dr. Chris Striemer & Dr. Cameron Hassall

# Sniff Around and Find Out

**By:** Travis Hutchinson

Despite the growing interest in canine communication there remains a lack of empirical data on the behavioural components of dog-to-dog greetings. Ward (2009) examined these interactions using video recordings of naturalistic observations and demonstrated that most greetings are brief result in positive or neutral outcomes and that dog body language tends to become neutral after a greeting. Ward's methods provide an initial framework for understanding the role of body posturing in canine social exchanges. The present study expands on this foundation by employing naturalistic observation through video recordings to analyze specific postures and behavioural cues that elicit positive negative or neutral responses from other dogs. We replicate Ward's (2009) basic methodology with the addition of specific cues that are known to correlate with emotional states. These cues include shake-offs paw-raises and lip-licking. Our goal is to identify antecedents to positive and potentially problematic behaviours in dog park settings using a behaviour-analytic approach. We predict that our results will replicate Ward (2009) such that post-greeting postures will be more neutral on average than pre-greeting postures. We also predict that dogs whose posture changes from 'high' or 'low' will produce shake-offs and that dogs with 'low' postures will also exhibit behaviours like paw raises and lip-licking. These insights will contribute to a deeper understanding of canine social behaviour and may have practical applications in improving dog park management and canine socialization practices.

**Faculty Mentor:** Dr. Lynne Honey

# Dog Park Behaviour Project

**By:** Travis Hutchinson, Olivia Piché, Sebastian Toews, Tobin Steman & Chelsea Calverley

We developed a standardized protocol for coding greeting behaviour between off-leash dogs at dog parks. The protocol provides utility to address gaps in observational and non-intervention research analyzing naturalistic dog greetings in public areas. Greeting onset was defined as one (single-dog) or both (dual-dog) dogs approaching and

maintaining a proximity of 30 cm while engaging in olfactory inspection (particularly towards the oral neck or anal regions) for a minimum of 2 seconds. Greeting offset was defined as a physical separation of 30 cm or transitioning into other behaviours such as play or aggression. Dog greetings were captured with cell phone video and analyzed by multiple independent coders. Standards for video-collected data were established and employed to analyze the following: greeting onset and offset duration of greeting identification of the initiator and receiver in each greeting dog size and changes in head and/or body posture between onset and offset. The future goal is to determine if interrater reliability is statistically valid across unique greetings and body postures.

**Faculty Mentor:** Dr. Lynne Honey

# An Examination of Implicit Theories of Worry

**By:** Syhdnnae Jans

Generalized anxiety disorder (GAD) is a relatively common mental disorder defined by chronic excessive and difficult to control worry. Moreover individuals who worry excessively may think about their worry differently based on the implicit theories they hold which in turn may influence their willingness to seek treatment. Implicit theories are heuristics held about personal attributes. Specifically we will be focusing on growth mindsets (i.e. believing that a personal attribute is malleable) and fixed mindsets (i.e. believing that an attribute is unchangeable). Limited research has explored implicit theories in mental health and no published studies have examined implicit theories of worry. We hypothesize that students who report more severe worry are more likely to hold a fixed mindset regarding their worry (i.e. more likely to report their worry is unchangeable). We also plan to examine if implicit theories are related to interest in various forms of treatment. Separately we are going to test if reading the Canadian Psychological Association (CPA) "Psychology Works" Fact Sheet about GAD will increase growth mindset and therefore interest in treatment. In the study participants will complete a series of online self-report questionnaires before being randomly assigned to read either the CPA GAD Fact Sheet or CPA Insomnia Fact Sheet. Our goal is to recruit 300 participants. To date 279 participants have participated. Our findings could provide a greater understanding of the role of implicit theories in worry and GAD and may also have implications for the treatment of worry.

**Faculty Mentors:** Dr. Alexander Penney & Dr. Michele Moscicki

# Support for Developing and Maintaining Behaviour Change Plans

**By:** Syhdnnae Jans

Self-management strategies have been demonstrated to reduce problem behaviours such as restricted/repetitive behaviours. In order to maintain a self-management protocol self-monitoring and self-evaluation are often used in conjunction with self-administered consequences that are aimed at increasing the target behaviour (i.e. self-administered reinforcement). This study requires participants to define a self-management goal to change a self-identified behaviour (e.g. biting nails procrastination quitting vaping etc). Moreover this study aims to examine if providing students with help on tracking and managing their self-management protocol for their self-identified behaviour elicits a greater change in their target behaviour. Self-management for self-identified behaviours focuses on individuals taking control of their actions and habits. It involves recognizing specific behaviours they want to change or improve setting personal and attainable goals and implementing strategies to reach those goals. During the duration of the study participants will meet or email regularly with the researcher to stay on top of their self-management. Participants will have the choice in regards to how often they would like to meet or email with the researcher. We hypothesize that the students who attend more help sessions will see a greater change in their self-identified problem behaviour.

**Faculty Mentors:** Dr. Miranda Macauley & Dr. Russ Powell

# How do cognitive reappraisal interventions and active learning strategies impact test anxiety and exam performance?

**By:** Dana Jones

Cognitive reappraisal interventions have been shown to reduce test anxiety and enhance exam performance. Active learning which involves engaging students with course material beyond traditional lectures has been shown to be superior to passive learning environments. The present study combines evidence that passive cognitive reappraisal email interventions can reduce test anxiety and improve performance with evidence that active learning is superior to passive learning. We examined if an active

cognitive reappraisal intervention was more effective than a passive intervention for reducing test anxiety encouraging cognitive reappraisal use during an exam encouraging beliefs that stress is helpful for performance and improving exam performance. We found no significant difference in test anxiety cognitive reappraisal use or exam performance between the active and passive conditions. However we found that students in the active condition were less likely to view stress as debilitating and students who did not view stress as debilitating performed significantly better on their midterm than students who did view stress as debilitating. We found no significant difference in test anxiety levels likelihood of using cognitive reappraisal and exam performance between the active and passive conditions. However we found that students in the active condition were more likely to rate stress as helpful and students who rated stress as helpful performed better on their midterm than students who viewed stress as a hindrance. Additionally we draw on mindset literature to examine how holding a "stress-is-enhancing" mindset interacts with factors related to test anxiety such as procrastination and perfectionism.

**Faculty Mentor:** Dr. Michele Moscicki

# Dirty Deception: Do Dark Triad traits predict lying about sexual history?

**By:** Zach Krukowski

The present study examined the relationship between the Dark Triad traits (i.e. Machiavellanism narcissism psychopathy) and interpersonal deception about sexual history. Measures used included the Short Dark Triad (SD3) the LiES scale (relational and vindictive lying) and vignettes with a focus on deception regarding previous number of sexual partners. Males scored higher in the psychopathy and vindictive lying subscales whereas females scored higher on the relational lying subscale. As a composite measure the Dark Triad was a significant predictor of endorsement of lying about sexual history across multiple different scenarios with the individual facet of psychopathy being the strongest predictor in all scenarios while Machiavellianism proved to be a strong secondary predictor in three of four scenarios. Narcissism was not a significant predictor of lying about sexual history in any present vignette. In three of four vignettes being male proved to be a significant predictor of lying. These results suggest that the Dark Triad Traits are associated with interpersonal deception about sexual history.

**Faculty Mentor:** Dr. Lynne Honey

# Parental beliefs about children's language and music development: a pilot project

**By:** Ashley Kutcher

Parents have access to a wealth of information regarding child development; however, much of this information is conflicting, incorrect or misleading, or overwhelming in amount or complexity. We distributed a survey distributed to parents/guardians of children under five years of age (n = 27) in Edmonton, Alberta, Canada and surrounding areas. Descriptive and correlational analyses were used to address the following: (1) What knowledge and misconceptions do parents have regarding language development? (2) Is knowledge of language development associated with parental demographic variables? (3) What concerns do parents have about language development? Found that only 48% of parents sampled correctly identified the age range at which children tend to produce their first words, and only 53% correctly identified the age at which children begin producing two-word utterances. There were no significant correlations between any of the demographic variables tested and knowledge of milestones; however, correlational values indicate that this is likely due to the study being underpowered. However, this research informs the literature on areas in which parents have concerns regarding their child's language development, with the most common being their child not meeting speech milestones and having difficulty producing and understanding speech. This exploratory study offers insights into parental knowledge of language development, highlighting common misunderstandings and areas in language development in which parents have the most concern that can be addressed in future research.

**Faculty Mentor:** Dr. Kathleen Corrigall

# Dancing Smarter Not Harder: Predictors of Success in Adolescent Dancers

**By:** Taylor LeBlanc

Dancers enhance their ability and success not only through instruction but also by actively facilitating their own learning. While research has explored factors that influence success in sports, studies focusing specifically on dance are limited. This study examines cognitive and behavioural predictors of success in dancers, defined as both objective performance and self-reported satisfaction with performance. Specifically, we analyze assess four predictors: (1) growth mindset, or the belief that ability improves with effort; (2) self-regulated practice, which involves reflection, planning, and self-evaluation, processes aimed at transforming cognitive abilities into performance skills; (3) goal orientation, as described by the 3×2 framework, which categorizes goals by orientation (approach: striving for success; avoidance: avoiding failure) and source of motivation (task-based: mastering a skill; self-based: improving personal performance; other-based: outperforming peers); and (4) strategy generation, or the ability to identify multiple ways to achieve dance-related goals. These predictors are examined in relation to one mediating variable: practice (quantity and quality), and two outcome variables: performance, assessed through adjudicator ratings, and satisfaction with performance, measured via self-report. By exploring these cognitive factors in adolescent dancers (ages 13–18), this study aims to clarify how dancers' approaches to learning shape both how well they perform and how they feel about their performance. Findings may inform training approaches that support efficient skill development, motivation, and satisfaction in dancers.

**Faculty Mentors:** Dr. Michele Moscicki & Dr. Kathleen Corrigall

# Exploring the relationship between parental involvement and child development in play activities

**By:** Isabelle Lee

Parental involvement are critical in a child's early childhood development. The relationship between parents and children forms the foundation for a child's engagement and understanding of the world around them. Our study examines the relationship between various parenting roles and engagement. Children are naturally involved in play activities their quality interactions impact their developmental outcomes such as problem-solving and vocabulary. In a between-subjects design we explored play interactions between 76 parent-child dyads (76 children M age=55.63 SD=10.16). In the experimental group parents and children played with versatile everyday objects in an unstructured play and in the control groups parents and children were given a puzzle to complete. We explored the roles parents took in 7 categories (i.e. uninvolved

behavioural monitor onlooker stage manager co-player play leader director) in children's play and how it impacted the engagement of children. Our preliminary analysis indicated a significant negative correlation between parents entering children's play only to monitor their behaviour and the parent's education level (r = -0.319 p < .01) implying that parents with lower educational levels tend to be more focused on monitoring their child's behaviour more than participating in the play itself. Further analysis explored how engaged children were when parents took on different roles in play. These findings underscore the importance of parental involvement in play activities and parental education as factors that may influence the parent-child relationship. In our presentation we will discuss how play versus task completion impacted the roles parents take and discuss the implications.

**Faculty Mentor:** Dr. Ozlem Cankaya

## The Relationship Between Childhood Time-Out, Emotional Problems, and Personality

**By:** Katherine Luzanac

Time-out is a parenting strategy that involves temporarily isolating a child from a pleasant environment in the hopes of decreasing the occurrence of an unwanted behaviour. There has been a considerable amount of research supporting the effectiveness and safety of time-out procedures. Recently however there has been a movement online warning parents against the use of time-out procedures claiming that time out can negatively impact the relationship the child has with the parent as well as possibly lead to children having worse mental health in the future. While there has been a lot of research on the efficacy of time-outs there has been limited research regarding perceptions of time-out procedures from the perspectives of individuals who grew up experiencing time-outs. Therefore this study aims to explore students' previous experiences with time-out procedures and whether they would consider using time-outs on their own children. This study will also examine the relationship of time-out experience to parental attachment emotional regulation and psychological distress as well as evaluate students' preferred parenting styles. Additionally this study will examine students' perceptions of a new parenting strategy known as "gentle parenting" which emphasizes collaboration and communication throughout the process of raising children and correcting bad behaviour. This study will hopefully help shed some light on the realities of time out and undergraduate student's perceptions of parenting.

**Faculty Mentor:** Dr. Russ Powell

# Investigating the Effects of PK-20 on Locomotion and Startle Responses in Larval Zebrafish

**By:** Alex Mattar

Neuropeptides play an important role in modulating behavioural responses, yet their effects in zebrafish models remain unexplored. This study investigates the impact of the synthetic neuropeptide PK-20, on locomotor activity and startle responses in larval zebrafish (Danio rerio). Wild-type zebrafish at five days post-fertilization were exposed to PK-20 at concentrations of 1 µM, 5 µM, and 10 µM, with a control group in untreated system water. Larvae were housed under standardized conditions and were subjected to behavioural assessments using the DanioVision tracking software. Behavioural assessments included erratic movement, startle responses to light and dark transitions, and habituation to repeated mechanical stimuli. Data was analyzed using GraphPad Prism, with parametric and non-parametric tests applied based on data distribution. The results will contribute to understanding PK-20's role in neurobehavioural modulation.

**Faculty Mentors:** Dr. Trevor Hamilton & Ethan Hagen

# Is increased musical proficiency associated with increased spatial ability? An examination of spatial navigational tendencies and executive function in musicians.

**By:** Will McCarty

Previous research has shown links between guitar proficiency and motor skill acquisition, musical training and executive functioning, and spatial ability and skill proficiencies such as chess. What is yet to be determined though, is whether musical proficiency is also related to spatial ability and if this can provide an avenue for maintaining cognitive health. This study will investigate this relationship as well as the possible mediating influence of executive function. Precisely, it will seek to examine how both guitar and piano players navigate or play their instruments. This will be done by

assessing various cognitive and spatial abilities of guitar and piano players across high and low levels of proficiency. These assessments will include spatial discrete judgement tasks designed to measure spatial ability in both general and music-centered contexts. Additionally, other well regarded assessments of executive functioning will be administered.

These assessments will be evaluated for indicators of spatial ability whilst considering a baseline level of musical proficiency. Additionally, executive function will be assessed to determine if a mediating relationship exists. We expect the results to show that increased musical proficiency and spatial ability will share a strong positive correlation; especially when controlling for the mediating relationship of executive function. This study will provide insight into the spatial and cognitive abilities unique to guitar and piano players as a function of their musical proficiency. Ultimately, our results may provide evidence for the role of musical expertise in the development and maintenance of cognitive health.

**Faculty Mentors:** Dr. Eric Legge & Dr. Kathleen Corrigall

# Implementation of an Error Correction Assessment Protocol for Children with Autism

**By:** Sara Meadus

Discrete Trial Teaching (DTT) is a well-established evidence-based method commonly used to teach individuals diagnosed with Autism Spectrum Disorder (ASD) often leading to significant improvements in learning outcomes. Within DTT various feedback strategies are employed to teach new skills one of which is error correction. Error correction is used when a child responds incorrectly (e.g. saying "red" when the color is actually green) and numerous error correction procedures have been studied to determine which is most effective. However findings often vary across studies with some strategies proving more effective for certain individuals. In practice many practitioners rely on the error correction procedure they are most familiar with or have had success with in the past. While this approach may work for some clients it may not always be the optimal choice for every learner potentially leading to wasted time and inefficiency in skill acquisition. To address this challenge I propose implementing a quick pre-assessment of error correction procedures prior to developing a teaching plan. This pre-assessment would allow practitioners to identify the most effective error correction strategy for each learner reducing the need for trial-and-error during program

implementation. In this study I will examine four error correction procedures to create a pre-assessment protocol that enhances the selection process accelerates skill acquisition and improves the overall efficiency of individualized program planning and implementation.

**Faculty Mentors:** Dr. Miranda Macauley & Dr. Sean Rogers

# Parental Playlists: Investigating Preschoolers' Recognition of Parental Singing

**By:** Anza Mirza

Voice recognition is a skill that involves a complex interaction between multiple perceptual and cognitive processes yet our ability to recognize familiar voices occurs with ease. This skill emerges early in life with infants showing a readiness to attune to the voice's musical features–including pitch rhythm and timbre–well before they are able to understand its spoken content. The goal of the proposed project is to determine the acoustic features that contribute to preschoolers' recognition of maternal and paternal singing. Another goal is to document their appraisal of songs sung by their parents and those sung by unfamiliar singers with intact and altered sound features including pitch tempo timbre and musical key. Music software incorporating AI technology (e.g. Moises) have made the production and editing of music recordings more accessible. The use of AI technology to manipulate acoustic features creates opportunities to parametrically study how sound features affect perception. Manipulating the acoustic features will enable us to identify the essential cues that children rely on for voice recognition. Voice identification despite acoustic alterations will also shed light on the robustness of children's memory for their caregivers' voices. We predict that preschoolers will identify their parents' original sung versions more accurately than manipulated versions. We also predict that liking ratings of their parents' singing will be higher than those of unfamiliar singers. Identifying the unique attributes of parental singing will not only help us understand the musical basis of parent-child bonding but they can be informal to music therapy interventions.

**Faculty Mentor:** Dr. Tara Vongpaisal

# An Investigation of Behavioural Changes Following Acute Exposure to (-)-Nicotine Across Ages in Zebrafish (Danio rerio)

**By:** Madison Mrazik

Nicotine differentially affects certain regions of the brain across stages of development and creates various behavioural effects depending on dose schedule and administration and animal model. In zebrafish (Danio rerio) acute exposure to nicotine has been found to have anxiolytic effects such as an increase in locomotion and tank exploration. So far no studies have tested multiple concentrations of nicotine across multiple ages of zebrafish in the same experiment. In this study we tested four concentrations of nicotine (0 0.125 0.25 and 0.5µL/400mL) on four different ages of zebrafish (~6 8 12 and 14 months) to examine the behavioural effects after 3-minute exposure. Open-field and novel object approach tests were used to examine time spent in the thigmotaxis zone distance traveled and immobility.

**Faculty Mentor:** Dr. Trevor Hamilton

# Got Self-Control? Investigating Inhibition in North American Red Squirrels

**By:** Marko Muselin

The detour task is commonly used in comparative cognition to explore abilities related to motor self-regulation inhibitory control social learning and route planning. These tasks generally involve presenting individuals with a situation in which the direct route to a goal is blocked and a detour must be made to obtain it. Our study explores the use of a locomotor detour task in the North American red squirrel in a field setting. Each individual was presented with a detour apparatus that required a locomotion detour around a clear barrier in order to obtain a valued reward. Results indicate that squirrels can successfully navigate the task within the allowed time period and random apparatus orientation. Thus our preliminary results may suggest that red squirrels may have motor-self control in a foraging related task and thus require further exploration with other detour and motor-control related tasks.

**Faculty Mentor:** Dr. Shannon Digweed

# Eyes on the Prize: Cracking the Code of AI-Generated Deepfake Image Detection

**By:** Cadence Mutch

By examining the correlation between eye gaze patterns and accuracy in detecting AI-generated images this study hopes to provide insights into the cognitive processes involved in visual perception and pattern recognition. The use of real versus AI-generated images as stimuli enhances the ecological validity of the findings offering a more realistic understanding of how individuals interact with such images in practical scenarios.

**Faculty Mentor:** Dr. Michelle Jarick

# Fool Me Once, Shame on You: The Role of Gender Identity, Expression, and Attributions on Sexual Assault Victim-Blaming

**By:** Chloe Nelson

Research concerning sexual violence primarily focuses on cisgender women assaulted by cisgender men. This fails to recognize disproportionate rates of sexual assault (SA) experienced by transgender individuals, and the legal barriers they face (e.g., reporting rarely leads to charges/convictions). Attitudinal biases also impact judgments of SA victims; beliefs about rape myth acceptance (RMA), gender identity, and gender essentialism (GE) can exacerbate victim blaming. Research concerning transgender victims has methodological challenges (e.g., use of cismen stranger perpetrators), frequently excludes 2SLGBTQ+ participants (failing to address within-group biases), and is lacking in general. The current study addresses some of these limitations by examining perceptions of Level 1 SA victims (and cases) that vary according to victim gender identity (cisgender/transgender, as implied by biological sex), gender expression (self-presentation as man/woman), and gender attribution (other's perceptions of masculinity/femininity). Participants will complete demographic and gender-neutral attitudinal measures, followed by random assignment to one of eight SA vignette conditions and completion of a judgment survey about crime, victim, perpetrator, and

legal outcome perceptions. We anticipate that ratings in the transgender victim conditions will minimize the crime and blame the victim more than in cisgender conditions (overall). However, the attribution that a victim is masculine or feminine will further impact transgender victim conditions; albeit in different directions. This study has important implications for promoting awareness of how variations in gender perception (and related attitudes) can negatively impact victims of SA and their willingness to engage with the legal system.

**Faculty Mentor:** Dr. Kristine Peace

# Social Dominance and Social Security in High and Low Materialists

**By:** Khulda Noor

Past research shows that materialism the centrality on acquiring worldly possessions is used for social impression management. This study investigated whether high versus low materialists use materialism for different social reasons: to be better than the group (social dominance) or equivalent to the group (social security). We predicted that high materialists would exhibit the former by choosing more valuable items while low materialists would exhibit the latter by choosing items of equal value compared to the group. High and low materialists (experimental participants) were invited to an in-person lab with two other non-experimental participants. First materialism was manipulated for high and low materialists using luxury pens. Second participants completed 10 computer trials where they chose from a list of material items before and after being told that the item they chose is either higher equivalent or lower in value compared to the group (false message).

In trial 5 there was a significant interaction as high materialists chose more valuable items than low materialists in the equal false message condition. In trial 9 the effect of materialism on item values was significant as high materialists selected more valuable items than low materialists. In trials 5 and 7 there was a significant effect of materialism on item luxury as high materialists chose more luxurious items than low materialists. In trial 5 there was also an interaction effect of materialism and false message on item luxury particularly in the equal and lower condition. These results partially support the presence of socially-driven materialistic behaviour.

**Faculty Mentor:** Dr. David Watson

# Does Providing Students with Choice Increase Academic Confidence and Reduce Academic Procrastination and Stress?

**By:** Delaney O'Brien-Ristau

Objective. Research on Self-Determination Theory and Universal Design for Learning has shown that autonomy is necessary to foster motivation and engagement in students. Motivation and engagement have been linked to increased confidence and reduced procrastination and stress. Autonomy can be supported by providing students with many opportunities for choice within their courses (e.g., choice in assignment topics, modality, deadlines, etc). The current study aims to investigate the relationship between offering students choices in their coursework and their levels of academic confidence, procrastination, and stress.

Method. A sample of 100 undergraduate introductory psychology students was collected. Using an online survey, participants were asked to rank the flexibility of each course in which they were currently enrolled. Participants then responded to a series of questionnaires assessing course choices, confidence, procrastination, and stress. Participants completed the questionnaires first thinking about their least flexible course, then thinking about their most flexible course. Lastly, participants were asked to think about university in general while responding to a different series of questionnaires assessing course choice, confidence, procrastination, and stress.

Hypothesis. We predict that students enrolled in courses with more opportunities for choice will feel more confident, procrastinate less, and feel less stressed.

**Faculty Mentor:** Dr. Michele Moscicki

# The Effect of Task Engagement on Reward Processing

**By:** Abby Oloriz

Many aspects of human behaviour are shaped by reward processing including decision making and motivation. Electroencephalography (EEG) has identified a neural signal

called the Reward Positivity (RewP) which represents the brain's interpretation of reward outcomes. The aim of this study is to see whether the RewP is affected by task engagement. Participants will complete the "doors task" a decision-making task where selecting one of two doors may result in monetary outcome. In one condition (the standard version) rewards will be equally probable (50/50) while in the other one door will have an increased likelihood of reward introducing a detectable pattern. We hypothesize that participants will become more engaged in the patterned condition and that the RewP will be larger when they recognize and exploit this pattern. This would show that the standard "doors task" used to measure RewP lacks engagement and does not allow for learning potentially limiting its effectiveness. These findings would have implications for researchers using the RewP as a biomarker for depression ultimately improving the accuracy and applicability of EEG-based assessments in clinical settings.

**Faculty Mentor:** Dr. Cameron Hassall

# Influence of Study Tactics vs. Life Style Factors on Academic Performance

**By:** Neerali Panchal

The study aims to explore the relative impacts of self-management tactics and lifestyle factors on academic achievement among students.

Initially it seeks to replicate the results of a previous study which revealed the efficacy of certain self-management strategies—specifically the use of a dedicated study environment implementation intentions and contingent self-reward. Since the previous study was done before the pandemic this study will check if the same strategies are still associated with better study habits and grades.

The subsequent phase of the study investigates the influence of lifestyle factors—namely healthy eating habits sleep patterns and regular exercise—on students' self-control and academic performance.

**Faculty Mentor:** Dr. Russ Powell

# Coaxing and Coercion in Female Mating Behaviour: Motivations, Sociosexuality, and Dark Triad Traits.

**By:** Olivia Piché

The Dark Triad (DT) is composed of three intercorrelated traits—narcissism sub-clinical psychopathy and Machiavellianism. DT traits frequently lead to manipulative and self-serving behaviours in social contexts including sexual and romantic ones to acquire and maintain mates. Individuals with higher DT traits prefer short-term mating strategies and use mate retention tactics that increase incentives for being mated regardless of their sexual and relationship satisfaction. Sex differences in DT traits are small but males generally score higher than females and ample literature replicates the link between high DT traits and male sexual deception and coercion. Less attention has been paid to the possibility that DT traits in females may be correlated with using deceptive sexual strategies to obtain and maintain access to desirable partners. Research suggests that females high in DT traits approve of sexually coercive and coaxing tactics and even report a willingness to utilize milder forms of these tactics on desirable sexual targets. One plausible motivation for a female using such tactics is higher sociosexuality an interest in casual short-term sexual interactions. We plan to replicate previous literature showing that individuals high in DT traits and sociosexuality approve of sexually coercive and coaxing tactics and are willing to utilize them—with an emphasis on understanding these traits in a female undergraduate population

**Faculty Mentor:** Dr. Scott W. Semenyna

# Is Advertisement Sexy? An exploration of priming in perceptions of sexual consent

**By:** Nyala Pittel

Consent is more nuanced and complex than popular culture might have you believe. Like any interpersonal communication signals occur across multiple channels and require interpretation. In addition signals may be missing or unclear. Context is a source of information that usually unconsciously shapes this interpretive process. Given the persistent role of context in shaping human cognitions and behaviors we can ask whether consent exchanges might be influenced by a context that encourages the objectification or empowerment of women. In this research participants were exposed to stimuli in a first task designed to prime either objectification or empowerment of women

compared to a control condition. Participants' perceptions of consent were measured in reaction to video clips of sexual activity from popular media pre-determined to be somewhat ambiguous in their depictions of consent. Results showed that consent ratings did not differ between the priming and control conditions which may reflect priming conditions that were too weak or brief. However results provide robust support for perceptions of consent ratings that reflect uncertainty in the perceiver which would align with those who argue for a "gray zone" in consent and the need to understand it.

**Faculty Mentor:** Dr. Aimee Skye

# Bursting With Sound: Functionality of American Pika (Ochotona princeps) Vocalizations

**By:** Alice Rainville

My research expands on previous research about the communication system of American pika (Ochotona princeps). American pika are assumed to produce vocalizations that aid in individual identification and territory protection but further investigation on the acoustic features related to identifying characteristics in the calls is needed. Additionally there has been little research on the function of the "burst call" a more rare and acoustically distinct call that is different from their regular vocalizations. I will record individual calls from multiple pika in the Highwood region of Kananaskis Alberta as well as conduct playback and predator mount response experiments. The calls will then be measured and compared to further support the call variation exists between individuals and the function of the burst call assessed. This expansion into call variation and investigation into function will contribute further to understanding what factors influence the distinct and signature vocalizations of the American pika.

**Faculty Mentor:** Dr. Shannon Digweed

# Step Aside Fame, Facts Takes Center Stage: Examining the Role of Fame and Evidence in Sexual Assault Cases.

**By:** Nadia Reid

Immediately following the #MeToo movement going viral, an increase in police reported sexual assault cases occurred. The cases involving celebrities presented interesting trends. While some allegations were accepted as fact, and celebrity complainants were believed, in other cases celebrity defendants were viewed as more credible (especially when alleged victims were not famous). While celebrity status is associated with credibility, it is unclear how this influences blame perceptions. The current study examined the effect of celebrity status of the complainant (famous/not famous), defendant (famous/not famous), and the directionality of evidence (guilty/ambiguous/not guilty) on blame attributions. Participants were randomly assigned into one of twelve vignette conditions depicting a sexual assault trial summary that varied accordingly and completed measures of narrative believability and case judgement outcomes (i.e., complainant/defendant responsibility). We predicted that celebrities would be perceived as more credible and attributed less blame than non celebrities, with the effect being stronger in complainants (i.e., not famous = less credible). That said, we expected evidence directionality to override celebrity status effects, except in cases where the evidence was ambiguous. Unsurprisingly evidence took center stage and was the strongest determining factor in blame attributions. Surprisingly, fame of complainants or defendants did not influence judgments of blame and credibility overall, however defendant fame interacted with evidence directionality across several judgment variables. These results have important implications for how judges and jurors view allegations, as well as interpret evidence, when fame or status is a relevant consideration (particularly for defendants).

**Faculty Mentor:** Dr. Kristine Peace

# Personality and Politics: Collective Narcissism and Reactions to Political Issues

**By:** Lucia Rittammer

Collective narcissism, the belief that one's ingroup is exceptional and deserving of exceptional treatment, has been linked to ideological conservatism and right-wing authoritarianism. Although individuals higher in collective narcissism lack responsiveness to social action for disadvantaged individuals, we explored how the framing of political issues might impact endorsement. The current research examines whether conservative (vs. liberal) participants would exhibit higher collective narcissism and report more extreme responses to relationally framed (vs. personally framed) political issues in Study 1 (N = 218) as well as past (vs. future) politically charged issues

in Study 2 (N = 277). In Study 3 (N = 268), we explored whether the relation between conservative ideology and collective narcissism would be mediated by self-efficacy, the concept that a person's confidence in their ability to carry out tasks required to achieve certain goals. We found inconsistent support for the existing relationship between collective narcissism and conservative ideology. In Study 1 and 3, we failed to replicate existing findings within the literature, but in Study 2, we found that those who reported themselves as conservative expressed higher collective narcissism. In Study 3, we found that conservatives perceived their self-efficacy as significantly higher than liberals. These findings suggest that the relationship between collective narcissism and conservatism may be context-dependent. Further research is needed to examine these dynamics within a Canadian context.

**Faculty Mentor:** Dr. Miranda Giacomin

# Gender? I Hardly Know Her: The Effects of Gender Self-Perception on Attraction

**By:** Marilyn Robbins

Human mate choice has been heavily studied from an evolutionary perspective with a focus on sexual selection theory. Gendered trait partner preferences have been found across sexes and cultures though variability is significant especially among females. Despite the wealth of extant research most studies focus on traits of the target – the potential partner – rather than traits of the participant. This is particularly true for effects of gender presentation or identity.

The present study explores effects of self-perception of participants' masculinity/femininity (M/F) on partner preference. This experiment tested the relative strength of similarity theory and complementarity theory. Similarity theory suggests that individuals choose potential partners based on similar or shared characteristics. The complementary theory suggests that individuals prefer partners with qualities that are different from their own.

Participants rated their own levels of M/F on a Likert scale for both their physical and behavioural gender expression. Participants then viewed a dating profile for their preferred sex. The profile contained a randomized masculinized or femininized face with a randomized description of either feminine masculine or androgynous behaviours.

We found that self-perception of physical and behavioural gender expression were significant predictors of target attraction ratings. Specifically we found some support for similarity theory rather than complementarity theory. This study shows the importance of considering the gender expression of both participants and targets in attraction research.

**Faculty Mentor:** Dr. Lynne Honey

# Behavioural changes following acute (-)-nicotine exposure across adult age ranges in zebrafish (Danio rerio)

**By:** Gary Rosastik

Despite known health risks the use of nicotine-containing products (NCPs) is still persistent in society. The continued use of NCPs is likely due to the anxiolytic effects of nicotine (NT) and the need to self-medicate. Due to conserved NT pathways and well-established behavioural paradigms zebrafish (Danio rerio) have become ideal model organisms to investigate NT effects. Previous studies have supported the anxiolytic effects of NT in zebrafish. However age and sex related differences in zebrafish behaviour have also been reported. This study investigated the effect of acute (3 minute) nicotine dosing on anxiety-like behaviour in adult zebrafish across age range in two behavioural paradigms. Three concentrations of (-)-NT (2.0 µM 3.9 µM 7.9 µM control: 0.0 µM) were acutely administered to four separate age ranges of fish (6 months 7 months 12 months 14 months). The open field exploration test (OFT) and novel object approach test (NOA) were used to assess anxiety-like behaviour where time in the outer (thigmotaxis) zone indicates increased anxiety and approaches to the novel object indicate boldness. In both paradigms time spent in each zone velocity and immobility were examined. Results will be presented.

**Faculty Mentor:** Dr. Trevor J. Hamilton

# Navigating Picky Eating: Enhancing Food Acceptance in Children through High-Probability Food Pairing and Shaping Without Escape Extinction

**By:** Katerina Rubachuk

No abstract available.

**Faculty Mentor:** Dr. Miranda Macauley

# Methodological approach for Studying the McGurk Effect in Hindi

**By:** Puja Suthar

The McGurk Effect is a perceptual phenomenon which demonstrates the integration of auditory and visual information in the perception of speech. When conflicting auditory and visual cues are presented simultaneously in video recordings of talkers uttering speech syllables listeners often perceive a syllable that is altogether different from those produced in the separate modalities thus demonstrating the integrated and multimodal nature of speech perception. To date much of the research on the McGurk effect has focused on English speakers and listeners and not much is known about how this phenomenon occurs in other languages. In the present study we describe a method for creating stimuli to study the McGurk effect in Hindi with consonant sounds that are common (bilabial denti-alveolar) and distinct (retroflex) from English syllables. We also describe a protocol for recording high quality audiovisual stimuli that can be used to standardize procedures for studying the McGurk phenomenon more widely and systematically.

**Faculty Mentors:** Dr. Tara Vongpaisal & Dr. Pertti Palo

# The Role of Face Perception and Eye contact in Social Communication of Toddlers with Autism Spectrum Disorder.

**By:** Puja Suthar

While face perception is critical for social interactions children with Autism Spectrum Disorder (ASD) often have atypical face processing and eye contact. This study examines the role of face perception eye contact and social communication abilities in toddlers with ASD compared to typically developing (TD) toddlers. Using eye-tracking and EEG measures we investigate how gaze behavior and neural responses to faces are associated with social engagement between the two groups. We will observe the differences in gaze behavior fixation on key facial features and neural responses to faces. Participants will view images of human faces with different emotions looking with direct and averted gaze. Social communication behaviors will be measured using standardized parent-report questionnaires. By analyzing patterns of eye contact and facial scanning strategies we aim to determine whether differences in face perception relate to variations in social communication. Understanding these relationships may provide insight into the neural mechanisms that underlie social difficulties in ASD and inform future research on potential supports for social development.

**Faculty Mentor:** Dr. Anna Krasotkina

# How Do Visual and Tactile Object Features Enhance Executive Functioning?

**By:** Adam Szybunka-Ostopowich

Executive function is a set of neural structures and psychological processes, including working memory, cognitive flexibility, and inhibitory control, that underly our ability to problem solve and multitask.

In previous work, we demonstrated that children showed greater flexibility in switching between rules when sorting three-dimensional objects than two-dimensional picture cards used in the standard version of the Dimensional Change Card Sort (DCCS). We attributed this enhanced executive functioning performance to children's better representation of object features, a deeper learning of the sorting rules, and to greater task engagement when interacting with three-dimensional objects.

In the present study, we seek to examine the perceptual contributions to enhanced executive functioning more closely by varying the features and availability of visual and tactile information. We created three-dimensional polyhedrons which vary in shape (simple and complex) and texture (smooth and rough) to be sorted in a three-dimensional version of the standard sorting task.

Child and adult participants will perform the sorting task in the free field and in an occluded condition through an apparatus that obstructs visual information of object features. In addition to sorting accuracy, we will measure sorting rate to capture behavioural responses of executive functioning in greater detail.

We predict that reaction time will decrease with age, but will increase with stimuli complexity. Finally, we expect that sorting rate will be faster when multimodal visual and tactile information are available in comparison to unimodal tactile information only.

**Faculty Mentor:** Dr. Tara Vongpaisal

# The impact of play materials on young children's science technology engineering and mathematical explorations in peer play

**By:** Keirsten Taylor

Children's play and STEM explorations intersect as they engage in sensory exploration item manipulation and problem-solving naturally developing foundational STEM concepts. Loose parts play involves everyday objects like acorns and sticks and offers open-ended manipulable materials that encourage creativity problem-solving and hands-on STEM explorations. During peer play children collaboratively test ideas problem-solve and explore STEM concepts. While educators recognize the potential benefits of loose parts in promoting STEM explorations research has yet to thoroughly examine their role in fostering STEM explorations during unstructured peer play. As early childhood playtime declines and efforts to introduce STEM explorations early increase understanding how different play materials shape STEM explorations becomes critical. This study investigates the impact of play materials on children's STEM explorations during indoor peer play by comparing their interactions with loose parts and a structured Playmobil® set. Thirty-six children (17 boys age M = 62.8 months SD = 6.4) participated in two 15-minute play sessions one with loose parts and one with a Playmobil® set. Using a within-subjects experimental design quantitative and qualitative

data were collected. The Head-Toes-Knees-Shoulders Task assessed executive function the Theory of Mind Scale measured social cognition and a parental questionnaire captured the home learning environment. Paired-sample t-tests (Wilcoxon signed-rank) will compare STEM explorations between conditions while exploratory factor analysis will identify key components of the parental questionnaire. Forward linear regression will assess predictors of STEM explorations considering executive function social cognition age play partner relationship gender and parental questionnaire factors.

**Faculty Mentors:** Dr. Ozlem Cankaya & Dr. Tara Vongpaisal

## Fighting Fire with Fire: Presenting a Pseudoscience Activity to Combat Unwarranted Beliefs

**By:** Sebastian Toews

This study implements a brief pseudoscientific activity combined with a targeted educational intervention aimed at reducing pseudoscientific beliefs. Participants will first engage in a dowsing task and then be randomly assigned to one of three conditions: (1) a blinded dowsing task paired with a brief educational intervention promoting scientific skepticism (2) an educational intervention alone or (3) a no-intervention control. Following the experimental phase participants will complete validated questionnaires assessing their pseudoscientific beliefs. A multivariate analysis of variance (MANOVA) will evaluate differences between groups specifically examining whether hands-on exposure to pseudoscience combined with educational intervention effectively reduces overall pseudoscientific beliefs.

**Faculty Mentor:** Dr. Rodney Schmaltz

## Examining Metacognition and Open-Mindedness as Tools for Combatting Misinformation

**By:** Dawson von Stein

As online access expands misinformation flourishes complicating efforts to accurately assess information. Recent theories suggest susceptibility to misinformation arises from limited metacognitive awareness which is the gap between perceived and actual knowledge. This study examined whether metacognitive awareness and actively

open-minded thinking predict susceptibility to misinformation and science knowledge among undergraduate students (n = 498). Participants completed measures assessing metacognitive awareness actively open-minded thinking misinformation beliefs and general science knowledge. Results revealed actively open-minded thinking as a robust negative predictor of misinformation beliefs and a positive predictor of science knowledge. However metacognitive awareness did not predict general misinformation susceptibility suggesting its influence might be domain-specific rather than general highlighting avenues for future research.

**Faculty Mentor:** Dr. Rodney Schmaltz

# Teaching AI-Generated Image Detection Ability

**By:** Deyan Vulkov

The recent spread of highly photorealistic images created by artificial intelligence (AI) depicting high-profile figures in scandalous scenarios threatens efforts to curb the spread of fake news on the internet. AI-generated images often contain artefacts which can be exploited to train individuals in detecting these images. This experiment assessed accuracy reaction time and confidence in identifying AI-generated images at a range of difficulty levels and tested the effectiveness of an educational intervention intended to increase accuracy scores in an AI-generated image identification task. Participants were shown a series of images that were real photographs or AI-generated fakes and were asked to press a key indicating their assessment of its authenticity. We found a modest improvement in AI image detection accuracy following education in AI image detection. With potential implications of these images going undetected ranging from geopolitical threat to personal defamation these findings suggest there is value in developing educational materials to improve performance in AI-generated image identification.

**Faculty Mentor:** Dr. Michelle Jarick

# Blind Spots and Battle Tactics: How Eye Gaze Shapes Spatial Cognition in Hide-and-Search Strategy

**By:** Nathan Wan

Eye gaze plays a crucial role in human cognition particularly in spatial reasoning and strategic decision-making. This study investigates how the presence or absence of eye contact influences hiding and searching behaviors in a strategic game setting. Using Battleship as a controlled environment participants engaged in multiple rounds under two conditions: (1) face-to-face with available eye contact and (2) separated by a physical partition eliminating visual interaction. We examined how players' hiding (e.g. clumped vs. dispersed) and searching (random vs. structured) strategies evolve across games and how gaze patterns such as looking at an opponent before or after moves shape adaptive decision-making. Preliminary observations suggest that gaze availability may influence players' strategic adjustments potentially leading to distinct patterns in target selection and avoidance behaviors. While data analysis is ongoing this research contributes to understanding the cognitive mechanisms underlying gaze-based strategy adaptation and spatial cognition in competitive environments.

**Faculty Mentors:** Dr. Eric Legge & Dr. Michelle Jarick

# From Childhood Reading to Adult Education

**By:** Tegan Warwaruk

Many studies have tested the association between parents reading to early adolescents and the improved cognitive abilities of those children into high school. Still none have tested this association at the university level. This study aims to see if there is a continued association between early adolescent reading and the level of education attained into adulthood. This study will use primary data collected from many social media platforms through an online survey. The study will test the highest level of education completed or currently completing years of completed education and if the subject was read to during their early adolcensts years 3-10.

**Faculty Mentor:** John Fedoruk

# The Relationship Between Pet Ownership and Disordered Eating Behaviour

**By:** Isabella Yip

Disordered eating is the subclinical manifestation of eating disorders and generally presents as a fear of weight gain or a desire for thinness. It commonly includes restriction, purging, and/or excessive exercise and can lead to physiological harm or high mortality. Moreover, DEBs may present alongside other psychological phenomena, such as anxiety, depression, or loneliness. Previous research has demonstrated that animal-assisted interventions are associated with less severe symptoms of loneliness, anxiety, and depression and can improve overall well-being. Pet ownership could be associated with reducing one's drive for thinness and body dissatisfaction through the human-animal bond. Thus, the present study examined how pet ownership may be associated with DEB. Participants (N = 645) completed questionnaires measuring anxiety, depression, affect, loneliness, DEBs, and pet attitudes and ownership. We predicted that primary caregivers of pets would have decreased levels of anxiety, depression, negative affect, and loneliness and, therefore, fewer DEBs. Correlations, ANOVA, multiple linear regressions, and mediation analysis were conducted to determine whether pet owners scored lower on DEB subscales. Results revealed that pet owners in this sample scored higher on DEB subscales ($p < .05$). To our knowledge, this study is the first to examine the relationship between DEB and pet ownership. These findings provide insight into an undergraduate sample on DEBs, body dissatisfaction, and general well-being, and suggest how individuals with poorer well-being may be more likely to cope through their relationship with their pet.

**Faculty Mentor:** Dr. Eric Legge

# Assessing the Addictive Potential of Xylazine: A Behavioral Analysis Using a Zebrafish Model

**By:** Lanna Zahreddine

Xylazine an $\alpha_2$-adrenoceptor agonist tranquilizer used in veterinary medicine has recently emerged as a common adulterant in illicit drugs often mixed with fentanyl or heroin to enhance opioid effects. This combination increases accessibility and lowers costs but also heightens the risk of severe side effects including hypotension

bradycardia and fatal overdose. Despite its rising misuse xylazine's addictive potential remains unclear.

This study aims to determine whether xylazine itself is addictive to better inform treatment strategies for individuals abusing this drug. Using a zebrafish model we administer controlled doses of xylazine and analyze behavioral markers of addiction including conditioned place preference (CPP) and withdrawal responses. We hypothesize that zebrafish exposed to xylazine will develop CPP and exhibit withdrawal behaviors suggesting potential addictive properties.

By identifying whether xylazine induces addiction-related behaviors this research contributes to understanding its effects on the brain and behavior providing insights into its role in substance use disorders.

**Faculty Mentor:** Dr. Trevor Hamilton

# We Don't Talk about B: Exploring Factors Affecting Internalized Biphobia Mental Health and Outness Among Bisexual Individuals

**By:** Candice Zunti

Bisexual individuals often report unique experiences of stereotyping prejudice and discrimination from both the heterosexual and 2SLGBTQ+ communities. This is especially true of societies structured by heteronormativity where heterosexuality is the normative or preferred sexuality and mononormativity which promotes the norm that a person should only be attracted to one gender. These standards can negatively influence individuals regardless of their orientation to internalize discriminatory and stigmatizing attitudes resulting in the emergence of internalized biphobia. Few studies have examined specific factors that influence internalized biphobia and the implications of holding these negative internalized beliefs particularly within the bisexual community. To better support the well-being of bisexual individuals this study will examine factors hypothesized to either reduce or contribute to the development of internalized biphobia and corresponding mental health outcomes. These factors include validation of the bi-experience previous exposure to bisexuality community involvement relationship status identity erasure and attitudes about bisexuality. Participants who self-identify as bisexual will complete demographic and self-report measures assessing each of the identified risk and protective factors as well as measures of internalized biphobia

outness and mental health outcomes. We anticipate internalized biphobia and corresponding mental health outcomes will be mitigated by protective factors (e.g. identity validation community involvement)) and exacerbated by risk factors (e.g. identity erasure anti-bisexual experiences). This study will provide valuable insights that can inform educational campaigns and public awareness programs that aim to foster more inclusive environments and support the mental well-being of bisexual individuals.

**Faculty Mentor:** Dr. Laura Offrey

## Public Safety and Justice Studies

# Canada's Housing Failure

**By:** Tayler Kidd

An analysis of the biases perpetuated by media designed to frame immigration as the main cause of the housing crisis; by looking in depth at the nearly identical numbers in the Vancouver homeless count and the number of short-term rentals in the city.

**Faculty Mentor:** Dr.Hellen Gateri

## Social Work

# Addressing Systemic Barriers in Edmonton: Bridging the Gap Between Community Resources and Need

**By:** Sydney Britton, Amaal Askar & Sydni Ecker

Basic needs are fundamental requirements, not luxuries. Poverty extends beyond the lack of material resources, more accurately defined by the absence of a safe and secure standard of living. Due to the increasing costs of living in Edmonton, many of our community members are struggling to make ends meet. Systemic barriers impede access to these basic needs, and this study acknowledges the multifaceted challenges inherent in dismantling these barriers within the current socioeconomic environment. Nevertheless, existing community resources have the potential to mitigate these gaps. The central issue, however, lies in the accessibility of these resources and the prevalence of misinformation.

Through a mixed-methods approach incorporating surveys and interviews, this study seeks to investigate the barriers Edmonton residents and community service providers encountered in accessing, utilizing, and providing basic needs support services. The findings of this research will inform the development of strategies designed to enhance the efficiency and effectiveness of response efforts and to facilitate connections between individuals and available resources, ensuring equitable opportunities for all Edmonton residents and benefiting both vulnerable community members and the support teams dedicated to assisting them.

**Faculty Mentor:** Kealey Dube

## Colonialism Continued: How Western Education Continues to Fail Indigenous Youth

**By:** McKenzie Croken

For this work i will be show casing an infographic that i made. The infographic takes a look at how Western Education practices continue to fail Indigenous youth and how western education fails to connect Indigenous youth to their culture.

**Faculty Mentor:** Amber Dion

## Edmonton River Valley Parks: Identifying Barriers to Access and Enjoyment

**By:** Cassandra Hannin, April Wyant, Minh-Nguyen Chu, Marcus Castro & Lindsay McLean

The purpose of our project was to investigate barriers to accessing and utilizing the Edmonton River Valley Parks. We conducted research through a survey to determine barriers and developed actionable recommendations to enhance park use and engagement.

**Faculty Mentor:** Kealey Dube

# The prevalence of suicide and mental health concerns among those struggling with invisible disabilities

**By:** Brynne Thomas

During my presentation I will be conducting research around the topic of invisible disabilities and how common those struggling with these disabilities experience suicidal ideation and mental health concerns. I will also discuss ways we as a society can support those struggling with invisible disabilities.

**Faculty Mentor:** Gisele Mak

# Equity Diversity and Inclusion within the Rural Development Network

**By:** Kamylle Viney, Skye Sekulich, Leilani Konietz, Shilpa Saju & Alexa Warawa

This project aims to create a comprehensive course as a living document designed to promote Equity Diversity and Inclusion (EDI) within the Rural Development Network (RDN). The project focuses on providing RDN with an accessible and foundational building block to build upon and alter over time as organizational needs change. The course includes structured modules on an introduction to EDI social location and privilege cultural competence and well-being and trauma informed care. The project was carefully curated based on existing research to consolidate resources and training materials to offer employees insight into sustaining RDN's EDI efforts. This project synthesizes existing knowledge on EDI practice and organizational needs to guide RDN in implementing effective EDI initiatives. The project includes tailored activities to empower employees to engage in self-paced and continuous training thus contributing to a diverse organizational culture. The project concludes with the next steps and additional resources to ensure long-term success and progress towards equity. It aims to enable RDN to revise the course as new EDI literature and practices emerge ensuring the organization's strategy can evolve.

**Faculty Mentor:** Kealey Dube

## Sociology

# Qualitative Comparative Analysis: Intercultural Research Between Ukraine and Canada - Urban Spaces Impact on Individuals Social Cohesion

**By:** Dahetlea Antoine & Reise Romanchuk

My partner and I will be presenting our collaborative intercultural research paper that we are working on with our Ukrainian Catholic University (UCU) collegues. We will be presenting our project proposal going through our proposal; highlighting the sociological problem of "What impact our environment and space has on individuals social cohesion?"

**Faculty Mentor:** Dr. Michael Gulayets

# The Honking Will Continue: A Content Analysis of Canadian Newsmedia Portrayals of the Ottawa "Freedom Convoy" and the Coutts Blockade

**By:** Taylor Badger

During the early months of 2022, in the mid-late stages of the COVID-19 pandemic, there were two significant right-wing protests that occurred across Canada. This study employs a deductive content analysis to examine whether Canadian media representations of protest and policing protest are aligned with current protest paradigm theories. By focusing specifically on these two high-profile 2022 protest events: the Coutts border blockade and the Ottawa "Freedom Convoy", this research aims to draw parallels or discrepancies between the media representations of policing protest and current protest paradigm theories. I analyzed 100 news articles (50 for each protest) from major Canadian print and digital media outlets, focusing on the framing devices, police narrative structures, and protest paradigm identifiers that shape the coverage of these events. The coding framework identifies key elements that either reinforce or refute traditional protest paradigm expectations. This study contributes to protest paradigm theory literature by challenging the consistency of protest paradigm theories in a specifically Canadian context.

**Faculty Mentor:** Dr. Amanda Nelund

# The Dissolution of Community and The Role of Technology

**By:** Kaiden Blakley

In this study I was interested in understanding the increae in community dissolution and the impacts that technology has on this process. In doing so I discuss the perspectives of Robert Putnam and his book Bowling Alone (2000) Franco "Bifo" Berardi in his texts And Phenomenology of the End (2014) and The Soul at Work (2009) lastly Byung-Chul Han's text Burnout Society (2015). This poster combines these three thinkers to argue that when taking the role of technology into consideration today's society is depressed anxious panicked overstimulated and disconnected.

**Faculty Mentor:** Dr. Annaliese Pope

# Hostile Design On Campus: An Observational Study

**By:** Caitlyn Brown

Hostile design, also known as defensive or exclusionary design, refers to objects used to exert social control over public spaces by targeting the behaviors of vulnerable groups. Hostile design takes many forms; some examples include skatestoppers, security cameras, spiked ledges, divided benches, bars over heating vents, and locking garbage cans. The commonality among these forms is that they all have the effect of regulating, restricting, and excluding vulnerable groups from public spaces. The regulation and exclusion of these vulnerable groups often goes unnoticed by the rest of the population because their behaviors are not being specifically targeted. This allows hostile design features to effectively be hidden in plain sight. This project seeks to explore the following question: Does MacEwan University utilize hostile design on campus, and if yes, how does it regulate or restrict the use of public space? To answer this question, I will conduct a small observational analysis of the MacEwan University campus focusing on public outdoor spaces between 105th St. and 111th St.

**Faculty Mentor:** Dr. Amanda Nelund

# The Mediatization of War and Its Role in Shaping Youth Political Activism.

**By:** Caitlyn Brown & Aiden Hite

The mass media has become increasingly important and influential in society. It has been integrated into almost every social institution including politics, culture, religion, education, etc. This process whereby the mass media is integrated into and exerts influence over social institutions is known as mediatization. In the 21st century, one area in which we are seeing the effects of mediatization is war and conflict. The mediatization of war has resulted in a form of warfare that combines conventional armed forces with information warfare tactics such as propaganda and disinformation. It has also allowed citizens from around the globe to be connected to international conflicts in ways never seen before.

Because of its dire consequences, war is often accompanied by pushes for social change. Historically, youth activists have been at the forefront of calls for change. Mediatization provides new opportunities and challenges for youth activism. Through media, youth movements can quickly recruit new members and mobilize resistance efforts, often on a global scale. However, youth movements who utilize media must also navigate unique the challenges posed by information warfare tactics. Our research plans to use a symbolic interactionist approach to examine the powerful influence media has in shaping how young people understand and respond to war. Our research asks the following question: how does the mediatization of modern war impact the youth's political involvement and behavior?

**Faculty Mentor:** Dr. Michael Gulayets

# How have modern features in society facilitated a realistic notion of motherhood?

**By:** Kiara Bruynooghe

Particular features in society that create a realistic notion of motherhood and how we have changed in our communication on motherhood struggles. Specifically how society has adapted to accept and discuss the downside to struggles of everyday motherhood. Highlighting the benefits of existing in a society where it is normalized to create a safe environment to relate to one another resulting in stronger social bonds.

We have left behind a society where we beat around the bush!

**Faculty Mentor:** Dr. Kalyani Thurairajah

# Contrasting Narratives: Representation of Homelessness in Alberta and British Columbia Media: Mortality Deviantization and Humanizing Language

**By:** Merranda Felker

Homelessness is an escalating social crisis within Canada and is caused by a lack of affordable housing and fair working wages. Homelessness is defined as the absence of permanent housing security or the lack of immediate housing prospects (Homelessness Statistics in Canada 2024). Media news outlets that cover homelessness have the ability to influence public opinion which can then have broader effects including the potential to influence policies that remedy this growing problem (Flato 2022). This research study is a qualitative content analysis of how the media presents the complex issue of homelessness. It compares Alberta and British Columbia in order to analyze similarities and differences in coverage.

Keywords: Homelessness media encampments deviantization government responsibility

**Faculty Mentor:** Dr. Alissa Overend

# Therapeutic Discourse and Modern-Day Exorcism: An Analysis of Reverend Bob Larson

**By:** Emily Finna

This presentation focuses on components of my Independent Study project conducted in Fall 2024. The study examined the nature of contemporary exorcism in North America, paying particular attention to controversial evangelical exorcist Reverend Bob Larson. Addressing twentieth-century sociocultural trends that popularized exorcism in North America, my work applied Goffman's (1959) impression management theory and

Hochschild's (1979) concept of feeling rules to explore performativity in Larson's ministry. Integral to these analyses was a discussion of how Larson's ministry incorporates sentiments from therapeutic and self-help discourses to attract followers—and how exorcism fits into the modern-day pursuit of well-being more broadly. This presentation focuses on the ways in which Larson—and other evangelical exorcists—weave together the language and goals of both religion and therapy to promote exorcism as a curative ritual that tackles both the demonic and the mundane.

**Faculty Mentor:** Dr. Susan Raine

# Pinkpill vs Blackpill

**By:** Chadene Forrester

This paper explores the underrepresented Femcel community—women who identify as involuntarily celibate due to their perceived unattractiveness—and how their ideologies compare to those of male Incels. Using TikTok videos I analyzed 21 Femcel-related posts through snowball sampling and grounded theory coding. The findings reveal that Femcels internalize societal beauty hierarchies rationalizing their romantic struggles through concepts like "lookism" and the "pink pill" while engaging in "lookmaxxing" to enhance their appearance. Unlike male Incels who often externalize blame Femcels adopt a more fatalistic view primarily blaming themselves for their lack of romantic success.

**Faculty Mentor:** Dr. Amanda Nelund

# Social Inequality: Anti-Fat Bias in Society

**By:** Wy George

Weight-based stigma (also known as anti-fat bias) refers to a negative attitude or stereotype of someone with a larger than average body size (Ramos et al. 2019). Anti-fat bias is prevalent in the society that we live in today and it is impacted in part from an emphasis on pro-thinness. Anti-fat bias directly impacts fat people in many ways including them experiencing discrimination in the workplace in the medical field and in day-to-day life in general. This sociological analysis examines the detrimental effects of anti-fat bias and suggests ways that fat positive advocacy movements on social media including Health at Every Size and body neutrality may help to not only

bring awareness anti-fat biases but also to push back against those biases and make the world a safer and more inclusive space for fat people to live in.

**Faculty Mentor:** Dr. Diane Symbaluk

# Edmonton Safe Consumption Sites and Their Relationship with Crime

**By:** Aaron Glenn

Since the 1990s a shift in the glocal landscape of addiction and drug misuse has occurred, with synthetic opioids like fentanyl being a major contributor. Edmonton, Canada has mirrored this trend declaring a local drug poisoning crisis. Safe consumption sites have been used in numerous countries as a harm reduction strategy providing clean needles, Naloxone access, and training staffing to deal with drug poisoning incidents. Safe consumption sites have received public scrutiny with claims that these sites increase crime in nearby areas. This study examines the relationship between the presence of safe consumption sites and crime rates in Edmonton, with a focus on the neighbourhoods that have a safe consumption site over time from 2019 to 2023. Results showed a reduction in crime within areas while safe consumption sites were operational as well as a stabilization in drug poisoning deaths. This research underscores the importance of safe consumption sites in preventing drug poisoning deaths as well as the reduction of crime within the area. Based upon findings, the study recommends the addition of safe consumption sites across Edmonton and cautions against the proposed involuntary treatment centers proposed by the Provincial Government due to their limited long-term effectiveness.

**Faculty Mentor:** Dr. Parvinder Hira-Friesen

# Systemic Racism and Hockey: How do the NHL and PWHL Bargaining Agreements Reflect the Hierarchy of Racialization and Privilege?

**By:** Aaron Glenn

This study examines whether the collective bargaining agreements of the National Hockey League (NHL) and Professional Women's Hockey League (PWHL) reinforce or challenge the hierarchy of racialization and privilege. With continued incidents of racism being reported by current and former professional hockey players, we aim to examine whether policy reinforces hateful behaviours. Utilizing a theoretical perspective grounded by critical race theory, this study will conduct a critical discourse analysis examining the agreements at both a micro and macro level. This study finds that the existing policies fail to take an intentional approach to prevent the reinforcement of the hierarchy of racialization and privilege through a direct anti-racism approach aimed at broader changes within society as a whole. This study comes at an important time as the NHL's collective bargaining agreement is due to expire at the end of the 2025-26 season.

**Faculty Mentor:** Dr. Kalyani Thurairajah

## Neoliberalism and Identity: Tradwives on TikTok

**By:** Amber Glover

Tradwives on social media have exponentially grown in popularity over the past few years. "Tradwife" a neologism of "traditional wife" is a woman who embraces and practices traditional gender roles. The ongoing tradwife social media movement promotes the adoption of traditional gender roles and ideas of femininity. The popularity of tradwives on social media is largely due to the tradwife influencers that promote the lifestyle on social media platforms such as TikTok and Instagram. This project aims to explore how tradwives exemplify the individual nature of neoliberal capitalism through qualitative content analysis of 30 TikTok videos. I will be sharing my research proposal and literature review.

**Faculty Mentor:** Dr. Annaliese Pope

## Invisible Truths: Representations of Incarcerated Queer Women in Orange is the New Black

**By:** Grace Lequier

This project focuses on contemporary representations of the Queer community specifically incarcerated Queer women in order to contribute to sociological understandings around how the dominant society has used media representations as a mechanism of oppression. I analyze the popular television show Orange is the New Black (OITNB) and use Queer criminology as a guiding theoretical framework to studyrepresentations of Queer women in prison. I find portrayals of women's sexual orientation and criminal behaviour that act to support the idea that Queer incarcerated women are doubly deviant breaking heteronormative and gendered norms. However there are also depictions of the incredible impact of marginalization on Queer women's pathways to crime and the continued victimization they experience while incarcerated. While OITNB shed some light on the harmful institutional practices of the criminal justice system it did not take further steps to counter negative stereotypes about Queer women and ultimately did not break free from the very cycle of oppression that the show's characters experience.

**Faculty Mentor:** Dr. Amanda Nelund

# Navigating the Temporary: Barriers to Stability for Ukrainian Newcomers in Canada

**By:** Joy Long & Kaidyn Seida

This research examines the structural and systemic barriers that Ukrainian newcomers face under the CUAET program, focusing on how these challenges hinder their economic, social, and legal integration in Canada. This research aims to explore why these barriers exist, how they are maintained, and how they differ from the experiences of other migrants. Specifically, the study centers on Ukrainian refugees fleeing Russia's full-scale invasion, particularly those residing in Canada as temporary residents. By gathering the opinions, perceptions, and experiences of both Ukrainians and Canadians, this research seeks to gain a comprehensive understanding of these challenges.

**Faculty Mentor:** Dr. Michael Gulayets

# Getting to the Heart of Gender Disparity: With a Focus on Coronary Heart disease

**By:** Justice Marks

In Canada "CAD including AMI is the leading CVD-related cause of emergency department visits hospitalizations and death among Canadian women resulting in nearly 14000 deaths per year" (Pacheco et al. 2021 p. 248). So are the reasons for a lack of diagnoses due to an overall stigma/stereotype lack of diagnoses' guide for symptoms presented in women a focus on psychological symptoms or all of the above. The remainder of this project will use a qualitative content analysis to look at the factors contributing to an overall under-diagnosis of coronary heart/artery disease in women stemming from a country with a universal healthcare system. So if we are aware that heart disease is one of the biggest killers of both men and women; why do disparities exist within how men and women are diagnosed in turn leading to a lack of diagnoses amongst women and ultimately a lack of necessary medical interventions? How many more articles have to be released until we realize that the current diagnostic processes for coronary heart disease are structured around the male representations of symptoms and until there's legitimate change more and more women will die.

**Faculty Mentor:** Dr. Kalyani Thurairajah

# How is positional polarization shown when discussing Canada as a '51st state' on Twitter (X)?

**By:** Brady Newman

I will compare replies to tweets from both Justin Trudeau and Donald Trump. I will select the 3 most recent tweets from each of the men which directly relate to Canada's sovereignty in some fashion. From these tweets I will select the 5 most liked replies from each tweet. I will then conduct a thematic content analysis across all 30 of my selected replies examining things including: the type of sentiment expressed who this sentiment is directed at what political affiliatons these accounts belong to etc. I will then compare results across the two sources (Trudeau and Trump) to see how positonal polarization is exhibited in each nation. Finally I will present my results in a poster format.

**Faculty Mentor:** Dr. Kalyani Thurairajah

# Networked surveillance of patients found Not Criminally Responsible

**By:** Amandeep Pannu

Little is known about what happens to people found Not Criminally Responsible of a crime (NCRMD) experience surveillance. In my presentation I draw on research collected by my faculty sponsor to ask the following research questions: First how do the institutional and community actors collaboratively construct a complete comprehensive understanding of the patient? And second what challenges arise when multiple actors attempt to integrate their diverse experiences and observations about a patient?

In answering these questions I detail how NCRMD patients and staff collaboratively create a wholistic understanding of the patient. This process involves active forms of surveillance on the part of both patients and staff and distinctly shape the relationships that patients have with family friends and employers. I found that surveillance is not a unidirectional process. Instead participants in this research suggested that patients families and staff collaboratively contribute to the surveillance process allowing for the creation of a multidimensional image of a patient's health wellbeing and success. This model differs from traditional top-down models of surveillance as individuals actively participate in the surveillance process in an effort to prove they have insight into their own mental wellbeing.

**Faculty Mentors:** Dr. William Schultz & Dr. Michael Gulayets

# The Impact of Social Media Influencers on Ethical Consumption

**By:** Fiella Phillip

My poster presentation will demonstrate the effects of social media influencers on public perception of ethical and sustainable product consumption. Through content analysis I will examine the themes and patterns through YouTube videos to see if influencers are promoting or rejecting overconsumption to their followers.

**Faculty Mentor:** Dr. Kalyani Thurairajah

# Women at the Crossroads: The Sociocultural and Religious Impacts of Sexual Education in Ukraine

**By:** Kasunee Ranasinghe & Sarah Al Zeeb

In Ukraine religious cultural and historical factors have affected sexual education which restricts complete information especially for women. There was a persistent knowledge gap on reproductive health since progressive sexual education was never completely implemented even though religion was suppressed throughout the Soviet era. Especially in rural places Orthodox Christianity and Catholicism still encourage conventional family structures and abstinence which limits conversations about LGBTQ+ concerns consent and contraception. Since many parents and educators believe that talking about gender and sexuality is improper there is still a lot of public opposition to comprehensive sexual education (CSE). Reproductive health is the main emphasis of sexual education programs which ignore more general concerns about sexual liberty and safety. The absence of consistent curricula qualified teachers and religious resistance all make this worse. In light of Ukraine's high HIV/AIDS prevalence the lack of competent sexual education has serious public health repercussions. Furthermore the continuous conflict makes women and LGBTQ+ people more vulnerable which makes it much more important to have access to reliable sexual health information.

This study looks at how Ukraine's sexual education is still influenced by historical religious and cultural influences. By examining these obstacles it finds reform avenues that strike a compromise between the need for inclusive scientifically supported sexual education and cultural sensitivity. Reducing gender inequity enhancing public health and enabling people to make knowledgeable decisions regarding their sexual and reproductive health all depend on providing access to thorough sexual education.

**Faculty Mentor:** Dr. Michael Gulayets

# The Earth Speaks: Cultural Trauma and Climate Change Narratives in Media

**By:** Alyssa Rhodes

This presentation outlines research I will conduct for my sociology honours degree, focusing on applying cultural trauma theory to climate change narratives. As defined by Jeffrey Alexander, cultural trauma refers to the process by which a catastrophic event disrupts a society's cultural identity and values, leaving lasting marks on its institutions. This framework is critical for understanding how environmental crises, such as climate change, reshape societal narratives and responses.

In the face of rapid environmental transformation due to industrialization and exploitation, communities face significant challenges. This constructionist view of cultural trauma intersects with how ecological crises are framed in media narratives. Traditional narratives often prioritize human responses to climate change, positioning the environment in the background while human agency and adaptation take center stage. However, competing narratives, shaped by theoretical orientations such as Malthusian, Cornucopian, and Anthropocene frameworks, offer diverse perspectives on human responsibility and the Earth's role in the crisis.

This project will analyze climate change narratives in media, drawing on literary sources, newspapers, and websites. The project aims to demonstrate how ecological change represents a prolonged and unique form of cultural trauma by comparing these narratives with cultural trauma theory. Additionally, the analysis will show how societal anxieties, fears, and values shape the discourse, influenced by varying views on human agency, the Earth's role, and the broader consequences of ecological degradation.

**Faculty Mentor:** Dr. Jeffrey Stepnisky

# Why Buy?The Impact of Social Media on Young Consumers' Perceived Environmental Responsibility

**By:** Alyssa Rhodes

Environmental issues and consumerism are becoming critical to young people's lives and identities. This is a significant trend to note as they emerge as a vital segment in the consumer market. This seemingly contradictory connection can be better understood when considering social media's place in young people's lives. Social media is a powerful tool for consumers and companies. It provides a place to promote products and perceptions. However the role of social media in shaping young people as shoppers is largely overlooked in literature regarding sustainable shopping practices. Thus this qualitative study aimed to investigate this topic through one focus group and 50 online survey responses. In it many participants spoke about their struggle to

balance a desire to make environmentally responsible choices with the pressures of social media affordability and lifestyle aspirations. They explained how these competing interests and obstacles create a complicated social landscape that young consumers must navigate. Thus there was a call against the current system. Most respondents expressed heavy frustration about companies' roles in promoting overconsumption and continuing to overproduce with little regard for the environment. This suggests how individuals feel negatively about environmental responsibility being cast onto consumers instead of corporations. However participants still emphasize individual efforts to be environmentally conscious. Thus this study offers thoughtful and creative insights into how young people understand sustainability and their role in it. It also showcases young consumers' beliefs about how they can comfortably impact their environment offering perspective on healing relationships with companies and the environment.

**Faculty Mentor:** Dr. Kalyani Thurairajah

# Normalization and Civility: Attitudes and Trends Around Mask-Wearing among MacEwan Students in Fall 2024

**By:** Ezra Richards

Four years after COVID-19 lockdowns and mask-wearing mandates came into play COVID-19 remains a prominent threat. In Alberta alone COVID-19 has hospitalized and killed more people than any other respiratory virus in the Fall of 2024 (Government of Alberta 2024 "Summary" section). Despite this looming danger public health measures have fallen to the wayside with vaccine supplies facing delays rapid test kits becoming harder to access and mask-wearing receiving little to no coverage and endorsement from individual institutions or government bodies. In this project I examined current attitudes and trends around mask-wearing among MacEwan University students. Using grounded theory (Starks & Trinidad 2007) I collected data through one focus group with three MacEwan students and qualitative observations from three different locations at MacEwan University. Mask-wearing on campus has become less common overall and the mask's once-salient status as an emotionally and politically charged symbol has lessened compared to previous years of the pandemic. Further mask-wearing is not seen as a necessity to maintain public health or an intrusion on one's autonomy but as an individual choice for individual protection adopted only in particular circumstances. As COVID-19 and other health crises continue to threaten our health and well-being

examining current attitudes around mask-wearing and mask mandates can provide direction for future campaigns for public health overall. Targeted campaigning can foster collective action to mitigate COVID-19 and potentially prevent future health catastrophes.

**Faculty Mentor:** Dr. Kalyani Thurairajah

# Transgender and Nonbinary Representation in Youth-Rated Animated Television: An Honours Research Proposal

**By:** Ezra Richards

Amid the rise of anti-transgender legislation in North America especially against transgender minors it is crucial to investigate what narratives about trans people are currently circulating in the media and what messages they send to both trans and non-trans people. Previous studies demonstrate that when transgender characters and storylines are included in entertainment media trans people can call upon those characters and stories to realize their trans identities and build self-esteem around that identity. However the bulk of transgender representation on television from the last few decades has commonly featured transnormative characters that reify the gender binary more than challenge it and storylines that centre trans tragedy over trans joy. These normative characters and tragic storylines are conducive to poor self-esteem in trans people and the proliferation of transphobic stereotypes. In this proposal I outline a research project to analyze transgender and nonbinary representation in youth-rated animated television media. I plan to do a critical discourse analysis on a small number of animated television shows that feature trans or nonbinary characters all of which are rated TV-Y7 and have been released within the last decade. Through this proposed project I aim to examine the discourses of transness and queerness in recent youth-rated television and investigate how said representation may reproduce or challenge current anti-trans ideologies that are putting trans people at risk at the social and legislative level.

**Faculty Mentor:** Dr. Tami Bereska

# "Thrown in the Deep End": Reflections on Conducting Undergraduate Research with Vulnerable Populations

**By:** Ezra Richards & Sam Micka

In September 2024 we and Professor Annaliese Pope began a qualitative research project with Boyle Street Education Centre. In said project we conduct semi-structured interviews with BSEC students to discuss the soundscapes within their sleeping and resting places and the impact of sound on their well-being and ability to seek rest. This project was both of our first forays into the field of academic sociological research. In this poster presentation we reflect on our experiences carrying out this research project working with vulnerable populations as undergraduate researchers. We outline the many observations and questions that have come up during the research process some of which we prepared for during training and many of which arose organically while on-site and engaging with our participants. Most crucially we discuss our experiences getting "thrown in the deep end"– that is having our first experiences in the field involve a population that is vulnerable on multiple fronts being minors in precarious housing and/or Indigenous. Through this presentation we showcase the adaptive aspects of qualitative research and how we used these questions and observations to build rapport with participants revise our interview guides for deeper and more nuanced data and gain invaluable insights that only on-site research opportunities can provide.

**Faculty Mentor:** Dr. Annaliese Pope

# How the Lack of Social Programs Affects Maternal Care for Canadian Indigenous Women and the Role of Online Support Spaces.

**By:** Aiden Rosner-Swan

The availability of maternal care for Indigenous women in Canada continues to be a significant public health concern as systemic obstacles lead to significantly poorer health results for Indigenous mothers and their children. Lacking adequate social programs numerous Indigenous women seek advice community and emotional backing through digital platforms like Reddit TikTok and Facebook. This research examines how

Indigenous mothers use these online platforms to overcome structural obstacles in maternal healthcare. Utilizing qualitative content analysis this study investigates online conversations to evaluate if these digital communities act as significant sources of support or if they unintentionally perpetuate systemic isolation. This study enhances the broader conversation on health equity and digital advocacy by illuminating the influence of online networks in Indigenous maternal health

**Faculty Mentor:** Dr. Kalyani Thurairajah

## Student Engagement in MacEwan University's BIPOC Student Clubs

**By:** Suhana Samshood

From sports teams to orientations to student clubs. All groups develop something in common: "social capital" (Putnam, 2000, p. 24). Specifically, the ability to build community and personal development and bring awareness of "diversity and social justice issues" (Miller, 2016). I plan to apply this theory to analyze student engagement within BIPOC student clubs, given MacEwan's diverse population. I utilize the qual. methodology, content analysis to code Instagram and online written and verbal depictions of SE in clubs using MAXQDA. Results show student clubs are integral to the success and wellbeing of BIPOC students, and social media at large facilitates this engagement. This research will provide insight to the larger student population who are and are not partaking in student clubs with aims to increase SE (student engagement).

**Faculty Mentor:** Dr. Kalyani Thurairajah

## Indigenous Men's Media Portrayal in Relation to Crime in Canada

**By:** Jasmine Shillinglaw

This paper analyzes how Indigenous men are portrayed in media in regard to crime within Canada. With high rates of discrimination reported against Indigenous people and over-representation of Indigenous men in incarceration, particularly in Alberta and Saskatchewan, it may be of importance to examine media representation. Media portrayal is integral to the populace's perception of racialized minority groups, which is

important for awareness and mobilization to create change politically and socially, dismantling colonial structures. Utilizing Critical Discourse Analysis (CDA), this study analyzes news articles by major news media outlets; the findings reveal more subtle, indirect associations of violent crime, gang related crime, and drugs with Indigenous men.

**Faculty Mentor:** Dr. Kalyani Thurairajah

# How do School Board Policies Frame the Role of Gen AI in the Education System?

**By:** Mary Templado

AI has grown in popularity over the recent years especially forms of generative AI such as ChatGPT. Despite AI's potential to enhance student learning and increase accessibility there is a lack of clear policy and integration that leads to concerns in education such as academic integrity. The research question guiding this study is: How do school board policies frame the role of Gen AI in the education system?

**Faculty Mentor:** Dr. Kalyani Thurairajah

# Egg Donation in Ukraine: A Reflection of the Commodification of Women's Labour and Gender Inequality

**By:** Mary Templado & Kiara Bruynooghe

Egg donation in Ukraine has risen in popularity and is a multifaceted industry that reflects the commodification of women's labour and broader gender inequality. It is an intersection of medical advancements market practices social perceptions and also impacted by the sociocultural context of Ukraine. A critical feminist lens is applied and discusses the physical emotional and psychological toll on the egg donation process and as a larger reproductive industry. This paper also explores potential solutions such as better protections to address exploitation and harm onto women. We also explore the role of legitimization in this industry as it becomes more recognized as a formal job role.

**Faculty Mentor:** Dr. Michael Gulayets

# Faith Femininity and Force: The Intersection of Religious Control Gender Inequality and the Carceral System

**By:** Kirpal Thind & Aviva Addo

Religion and social control play important roles in shaping societal structures and reinforcing inequalities. Our analysis viewed through conflict and feminist theory depicts how religion serves as a tool for oppression particularly for Indigenous and Black women. Using Simone de Beauvoir's idea of "Woman as the Other" alongside Karl Marx's claim that religion is the "opium of the people" our project reveals how religious beliefs have historically supported patriarchal and racial hierarchies. Applying Kimberlé Crenshaw's intersectionality framework we show how systems of oppression compound the marginalization of women. For instance the Canadian residential school system not only enacted colonial control but also caused deep intergenerational trauma among Indigenous women whose identities are both racialized and feminized. The effects of social control extend into the criminal justice system where Black and Indigenous women face distinct challenges. Michel Foucault's ideas on discipline reveal that prisons often focus more on maintaining order than on rehabilitation creating barriers for women trying to reintegrate into society. From a sociological perspective we advocate for a thorough re-evaluation of the roles of religion law and punishment promoting restorative justice and gender-responsive policies that actively dismantle the intersecting power structures affecting women.

**Faculty Mentor:** Dr. Diane Symbaluk

# The Canadian Graffiti Subculture

**By:** Matthew Zaborniak

In recent times a unique and specific subculture has emerged—a culture based on the act of writing graffiti. Cultural criminology provides a framework for understanding graffiti beyond its legal classification as vandalism instead seeing it as a meaningful cultural practice. Graffiti writing is a street culture characterized by its opposition to social exclusion forming an alternative system of values and interactions. The concept of street capital explains graffiti's role in marginalized communities. Unlike traditional social

or economic capital street capital is derived from reputation skill and risk-taking within street culture. While extensive ethnographic studies have been conducted in the United States and Europe ethnographies must be context-specific. Thus new research is needed to explore graffiti's unique expression in the present Canadian urban landscape contributing to the broader understanding of graffiti through the lens of cultural criminology. This semi-ethnographic study plans to understand why people engage in graffiti-writing in the Canadian context as well as understand how symbolic subcultural capital—street capital—is attained within the graffiti-writing subculture.

**Faculty Mentor:** Dr. William Schultz

## Studio Arts

# Safekeeping

**By:** Aleesha Amjad & Theo Donavan

As time continuously moves forward we tread beside it. Strings of the past are tied to our fingers so we use them to construct new paths for the future. While we may have an initial vision of the direction we're being pulled we so rarely account for the twists and turns brought on by the intersection of others' strings meeting our own. It is this place of intersection where we all meet finding our strings intertwined. For the artists in this cohort learning to reimagine and retranslate our paths of research was crucial in seeing our way through this space. Now that we've reached the end of this journey we are all going our separate ways seeing where each of our strings pulls us next. And yet we can each look over our shoulder to find a tether to what we once shared.

Safekeeping the exhibition celebrating MacEwan University's first students graduating from the BFA Studio Arts program was organized by and features the work of Aleesha Amjad Theo Donovan Mary Escano Phoebe Hijmans Elena Mercuri Brooklynne Trieber Emily Venne and Mairead Charles.

**Faculty Mentor:** Anna Hawkins

# Making and Using Natural Textile Dyes with Mesoamerican Methods

**By:** Carolina Gonzalez Escamilla

This project of using natural textile dyes and Mesoamerican dyeing methods was inspired by an interest in caring for the environment and developing an artistic practice of dyeing with natural pigments using the traditions of the indigenous of southern Mexico.

Carolina is a multidisciplinary artist originally from Mexico. She is in her second year of the BFA Studio Arts program at MacEwan University. She loves nature and everything outdoors. She received funding from the Undergraduate Student Research Initiative (USRI) of MacEwan University for the purpose of developing this project.

**Faculty Mentor:** Kerri-Lynn Reeves